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Ethical and Moral Aspects of the Service

Major General Lionel C. McGarr, *USA*
Commandant, U. S. Army Command and General Staff College

Address to the College Staff and Faculty,
Fort Leavenworth, Kansas, 11 May 1960

AS YOU know, the requirement for strong CHARACTER and high ETHICAL STANDARDS is a must in our profession. In this respect we have read in our nationally known newspapers such interesting statements as this:

. . . Today the Armed Services—and particularly the Navy and Marine Corps —have instituted a strong training program for all rates, ranks, and seniorities in what currently is termed 'Moral Leadership'! . . .

Never in the past has such emphasis upon integrity, honesty of thought, and necessity for acceptance of personal responsibilities been necessary with American troops.

An allied statement recently appearing in one of our nationally prominent newspapers contends that Department of Defense study teams indicate a "shockingly higher level of Communist success than had been supposed" in brainwashing of our men taken prisoner in Korea. The writer points out that:

The Communist goals were toward a breakdown in character for the prisoners subjected to brainwashing. The intent was to reverse completely each man's loyalty, honesty, truthfulness, consideration for fellow soldiers, faith in God, and recognition of each man's personal conscience and responsibility to his comrades. Aims were broader than conversion to communism of the men in the prison camps. The brainwashing they received is part of a long-range, worldwide program to achieve Communist 'control of men's minds.' It is part of the continuing 'hot war of ideas,' Army Study Groups report. . . .

These statements, combined with others published and accredited to civilians in prominent positions of responsibility which profess a loss of faith in the man in uniform, point up the importance of the Army's continuing efforts to live by its traditionally high standards and to maintain absolute faith in itself!

I have always felt strongly that the continuing development and strengthening of progressively higher ethical standards and character traits in our officer corps are *not only* the responsibility of the service schools and colleges but of all commanders as well. I am convinced that the Army's need is for the development of the *complete* officer—not just his technical and tactical training and mental education.

Leavenworth Emphasizes Character

A high standard of ethical and moral conduct has always been a hallmark of the Army Officer Corps and most certainly of Leavenworth. However, for the 1957-58 academic year, these high standards were

It is the responsibility of all leaders to contribute to the progressive strengthening and development of character traits which foster toughening of moral fiber, intellectual honesty, and integrity in our officer corps

specifically preplanned for the first time as one of the actual *keystones* of the new educational philosophy of the College. For the past four years, my opening address to each class has stressed *above all else* the responsibility of our officers to further develop, improve, and maintain their own individual character, moral courage, and integrity. In addition, I have continually stressed the high code of ethics and moral standards under which the officer corps traditionally lives. Throughout all courses of study, the U. S. Army Command and General Staff College stresses the overriding importance of the application of integrity, moral courage, and high ethical standards—as integrated aspects of realistic classroom instruction—in our problems of military decision making.

Of course, I am fully aware that our typical College student is a mature, carefully selected officer whose character has been molded in large part by his early home life, his undergraduate schooling, his church, as well as by previous military training and years of service. However, I am firmly convinced that *this* phase of a person's development does *not* remain static—that it is not an "absolute" quality in this respect. Therefore, I am adamant in my belief that the College *can* and *must*—by study, academic atmosphere, and example—contribute to the *continuing*, progressive strengthening and development of character traits which foster toughening of moral fiber, intellectual honesty, and integrity in our students. I do not wish to imply that the College *alone* is responsible for the possession, upon graduation, of these traits by its graduates—nothing could be more inaccurate. However, I *do* feel these desirable traits can and must be strengthened and further developed throughout an officer's entire life. This is the responsibility, in varying degrees, of all leaders—from Chief of Staff of the Army to the lowest ranking noncommissioned officer.

Adverse Influences

With this firm belief in the continuing nature of an officer's character development, I am naturally alert and allergic to any adverse influence within or outside the Army that may develop. An example is the type of publicity which has occurred in the past concerning various aspects of service life, particularly those aspects that pertain to the ethical standards of our officer corps. This publicity has generally focused upon official investigations.

Let me make myself crystal clear. No one in the federal service of his country can, or wishes to question the correctness of official investigations in the quest for facts. As a vital part of our system, the military service is, and must always remain, open to the scrutiny of our citizens and pertinent governmental agencies.

Again, in keeping with our national concept of freedom of the press, the Army

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Major General Lionel C. McGarr was graduated from the United States Military Academy in 1928 and subsequently served with the 25th, 24th, 21st, and 30th Infantry Regiments. He went to French Morocco with the 30th Infantry Regiment, 3d Division, in 1942 serving in combat there and in Italy. He became Commander of the 30th Infantry in 1943 in which capacity he served in Italy, France, and Germany. He was named Assistant Commander, 3d Infantry Division in Germany where he served until November 1945. He graduated from the National War College in 1947 and was assigned to the Intelligence Division of the Army General Staff that year. He commanded the 350th Infantry Regiment in Austria, was Tactical Inspector of US Forces in Austria, and in 1951 was named Chief of Staff of the Tactical Command of these forces. In July 1952 General McGarr went to Korea as Assistant Commander of the 2d Infantry Division, later becoming Commanding General of the United Nations Prisoner of War Command. He assumed command of the 7th Infantry Division in Korea in October 1953. In 1954 he was designated CG USARCARIB in the Canal Zone. He assumed command of the U. S. Army Command and General Staff College in July 1956.

certainly has no objection to a full and frank exposition of all the facts regardless of consequences. For I am convinced that poor publicity must be "lived down" just as the good must be "lived up" to. Proud and confident of the high ethical standards and basic character of its officer corps, the Army welcomes close scrutiny of its actions by all concerned. This is the highway to public confidence and respect.

The dedicated Army officer in fulfilling his destiny *must* and *does* practice a standard of honesty and integrity second to none! My feeling and concern is, that in the mind of the public, the *over-all* service image could well be damaged by inferences of impropriety and reflections on the ethical and moral standards of active and retired military personnel. I am even more concerned about the impact of this type of publicity on the *will and determination,* the very "pride of service" of our younger officers—who may well be caused to wonder whether the officer corps actually practices what it preaches. From long personal experience, let me assure you that it does just that! (Also let me remind you that not a single *specific* with respect to these alleged improprieties has so far been made public.)

Human nature being what it is, we all realize that in any large segment of this, or any society, there always will be a few who will not measure up when the "chips are down." In our profession during wartime, because of the danger under which we must work—the stakes are higher—in fact, our very *lives* and possibly even the fate of our Nation depends on our individual and collective strength of character and integrity. Of course, those cases of weakness, which are refreshingly few, must be ruthlessly weeded out! As I have said, my feeling is that the inference of actual wrongdoing, as differentiated from probable wrongdoing, indicated in some of our press reports, could well give the public an erroneous impression even in light of overwhelming examples of the traditionally high motivation, dedication, and selflessness on the part of past and present members of our officer corps.

Unfortunately, in our contemporary society it is in the "nature of things" that *bad* publicity will often be accorded more attention, and even credence, than good publicity. It has long been popular, and specifically since World War II, to take a swing at the "Brass"—the "Brass" being anyone above the grade of corporal who is required to discharge authority and to administer all important discipline. Although both civilian and military leaders have come to the *public defense* of the officer corps, I feel more such emphasis is needed to counteract the possible and equally probable damage to the image of the service—both within itself and in the mind of the public.

Again, I want *you,* the Staff and Faculty of the College, to know that my trust and confidence in you is absolute. I am certain that you and the group of officers of which you are a part have the highest integrity index of any similar group in our society today. I am confident that this is a valid statement. This is in spite of my belief that never before in our history has there been a time when "material success" has been held in such high acclaim—and unbelievable as it may seem—been worshipped by so many as an acceptable substitute for a high code of conduct and accomplishment. To the undying credit of the military, *you* have not accepted the concept of material success—*you* have chosen a life of dedicated service and sacrifice to your country with its frustrations and hard work balanced by a sense of very real accomplishment. If, God forbid, it should again become necessary, I personally would be most willing—as I frequently have done in the past—to stake my life on the *honesty, integrity,* and *devotion* of our officer corps

to their duty—to their honor—and to their country!

Motivating Forces

I would do so unhesitatingly because I understand the forces which motivate the dedicated soldier—or do I? Does anyone—even the soldier himself? And this brings me to some further thoughts on what *actually* motivates a man to choose soldiering as a profession.

What is the attraction of this most ancient and honorable profession—the profession of arms—which causes men to follow it as a guiding star to the very portals of hell itself—and even to the grave—in fulfilling their destiny? Is it attaining that most sublime of all achievements—service and sacrifice in support of one's ideals—or is it merely the excitement and love of adventure epitomized in "Boot, Saddle to Horse and Away"? Or could it perhaps be something much deeper—possibly a combination of adventure, love of country, and willingness to "stand up and be counted" in doing one's duty regardless of the consequences?

The answers are complex—not simple. They are not writ in words of fire across the heavens for all who care to see. They are, however, often written in the innermost recesses of the minds, the hearts, and the very souls of the true soldier—written in his lucid ideas or in his vague desires, inner urges or even subconscious actions which often defy scientific or psychological evaluation. Who can say why one man, forsaking even home and family, will choose the "path of glory"—a hard, brutal uphill grind against often insurmountable odds which can lead only to triumph or death—while another chooses personal safety and security in some less exacting profession.

What are the physical, moral, and psychological motivations and other character ingredients of a traitor like Benedict Arnold, a man of sublime purpose and moral courage like Patrick Henry, or a true patriot like George Washington, who, reading the destiny of our fledgling country written in the bloody footprints of his suffering troops at Valley Forge, went out, alone, and knelt in the snow to ask God's divine guidance.

The answers are probably as diverse as human nature itself and as numerous as the stars in our farflung universe. Only one fact is immutable—it lies within man himself! For history has proved that the progress of the world has been attained by the inner strength—the will and determination—of a small handful of doers as opposed to the shallow, "do nothing" attitude of the great majority of the world's people—the followers. I am convinced that the strong and the wise of our country must "carry on" if we are not to commit national suicide. I feel that forthright men of letters, science, the cloth, and the sword, from the very nature of their work and their temperament, are most likely to spawn the "doer" types—and surely the most virile, the most daring, and the most selfless of this group are the latter—the soldier!

Looking for the source of this inner drive, we find motivation. Supporting the more specific and positive major "accomplishment type" motivation is a possible sublimation of the force of other various individual inner urges such as loneliness, love, restlessness, daring, and the like, which when forced to remain dormant—often, by military circumstances beyond an individual's control—are converted into additional positive type motivating forces.

The Soldier Personality

I feel that it takes a special type of "soldier personality" with a specific philosophy of life to be a good military leader—especially in the career sense. He must be strongly motivated toward the precepts of service and sacrifice to himself, his God, and his country, and he must be dedicated to the purpose of improving his

own abilities to fight—to lead men successfully in battle! The commanders of history are as numerous as the leaves of the forest "when autumn has blown," but the true leaders can be counted on the fingers of one hand. They are the ones who have gained the loyalty and admiration of their men by inspiring and motivating them to superhuman accomplishments. They are often the ones who have stood on history's stricken field, fighting against seemingly insurmountable odds, and have won—when according to the book they should have lost! Won, because they had inspired their men with their own indomitable spirit of accomplishment and sacrifice.

The professional soldier must develop and employ the highest degree of knowledge, competence, and integrity in keeping not only abreast, but ahead, of the fast-moving pace of his art. He must be able to think objectively, decide logically, and operate effectively in applying the all-important principles to his major job—military problem solving and decision making! He cannot, however, be a cold, calculating automaton—he must also cultivate and develop such human qualities as loyalty, compassion, intellectual honesty, humility, understanding, and self-sacrifice. And finally, he must understand the individual and mass psychology of the men he commands, for only in this way will he be able to extend or project his own personality, enthusiasm, spirit, and desire into his men—which, after all, is the very essence of leadership!

The Courage to Lead

Granted, however, that a man has these necessary mental, moral, and psychological qualities, will he always make a good soldier—more specifically, a good leader? Not necessarily so, I feel, unless he has the ability to know when to "lead" and when to "drive." He must have the moral and physical courage to use the required degree of force when the situation demands. Many a man with the other requisite qualities of leadership fails because he is incapable of exercising the necessary firmness—of being adequately ruthless—when faced with the awful decision of life or death for his men and himself. It is here on the battlefield, when his men look trustingly to him for successful leadership, that the oppressive—almost malignant—weight of the leader's responsibility impacts on every fiber of his being. It is here that the awful loneliness of command closes in and envelops him—like a vital force that beats against the armor of his mental toughness.

The decision must be the commander's! Does he have the courage to take the calculated risk or will he shrink from his full performance of duty? There is only one answer. The job must be done! No man should ever even think of doing less than his full duty—no man can ever do more. And remember always that courage—either physical or moral—is a state of mind, a psychological ascendance of willpower over the fear which is a basic part of us all.

And this introduces another important requisite—confidence. For although the battlefield type must also have such qualities as imagination and mental mobility, the over-all confidence which stems from professionalism—knowing his job—is an absolute must if he is to triumph over those debilitating quadruplets: Fear, worry, doubt, and despair. For man can be only as brave as his faith in himself and his cause—conversely he will be as cowardly as his doubts. And here in the dirty, brutal game of kill or be killed, it often happens that imagination can be even more important than knowledge in keeping alive and winning!

The brave man does his duty in spite of his fears, and he must school himself mentally, morally, physically, and psychologically throughout his life if he is to be ready to meet the test of battle. For cour-

age, like faith, is not a permanent quality. It must be nurtured and strengthened—lest we reach for it in our hour of need and it not be there.

Loyalty—a Two-Way Street

Further, the loyalty mentioned previously, and its Siamese twin, discipline, must be high on the list of attributes of any soldier. It is on the field of battle that sacrifice, devotion to duty, and fidelity to his ideals come into clear, sharp focus—but only to the degree that this loyalty has been ingrained into his character during his formative years in the homes, the schools, and the churches. Thus we see that military loyalty must be a two-way street—it must go down the chain of command as well as up—from the superior officer to the private, and from the private to the superior officer. Equally important, this loyalty must also be a bold, courageous, intelligent type of loyalty. It must not merely produce "yes men." A military man should objectively defend his considered opinion up to the point of decision—until the final decision is made by those in authority—he must then "close ranks" and loyally support the decision of constituted authority as if it were his very own.

The other Siamese twin, discipline, will be the final attribute of a soldier which I shall mention, although there are many others. Soldiers must recognize and be guided by a dual type of discipline—self-discipline and military, or group, discipline. The first type is developed by a continuing, critical, self-evaluation leading to a determination of personal weaknesses and then by taking the necessary action to correct these weaknesses. The last type, military discipline, is developed during military life and training and is a composite of pride in one's self, pride of outfit, and pride of service. The military leader's job of "influencing and directing" his men to perform an assigned mission in such a way as to gain their confidence, respect, loyal cooperation, and obedience can only be accomplished if he has developed this basic "dual" discipline to a high degree—both within himself and within his command.

And so we have that enigma which we call the soldier, so aptly described by Shakespeare's following lines on the seven ages of man:

> *Then a soldier,*
> *Full of strange oaths,*
> *And bearded like the pard;*
> *Jealous in honour, sudden and quick in quarrel,*
> *Seeking the bubble reputation*
> *Even in the cannon's mouth.*

Ah yes! Yes, indeed, a "special breed": Saint or sinner, hero or coward—savior or mountebank—man or beast—dreamer or realist—who really knows? One thing, however, *is* certain. Until that happy day when man progresses to the point where he ceases his inhumanity to his fellow man—until the world comes to its senses and develops a sanity founded on the simple truths of service and sacrifice our Savior taught—the soldier, that composite of many qualities, with all his capabilities and all his shortcomings, is and will remain the main hope of civilization!

Gentlemen, I am certain that my utter faith and confidence in the integrity and ability of the American soldier—both the officer and the enlisted man—is not misplaced.

MILITARY PROPHETS

Lieutenant Colonel Daniel J. Kern, *United States Army Reserve*

THE prophet, traditional and biblical, is without honor in his own country. The military prophet similarly is not only without honor in the land, but often earns the disdain and suspicion of his own army as well. Mitchell, De Gaulle, Churchill—and long before, it may be supposed, the man who tried to warn the Egyptians of the Hittite chariots. Unheeded and embittered are the prophets. Their bones litter the rutted wake of the trundling military machine.

Few have had the good luck (as Churchill) to survive long enough to be able to deliver themselves, if so uncharitably disposed, of an all too human, "I told you so!" In some cases, perhaps, it is best that they do not survive. When the prophecy has been cast with a Cassandrian gloom and foreboding, its author, like the messenger of bad tidings, is hardly a welcome figure. Laocoon, who tried to warn the Trojans against the gift-bearing Greeks and their wooden horse, was destroyed with his sons before the operation he forecast was accomplished. Indeed, the Trojans viewed his destruction as divine proof that he did not know what he was talking about. In their wishful thinking, they joyously bent themselves to the task of dragging in the towering engine, the announced and accepted peace offering, that was to destroy them.

Like Laocoon, military prophets generally seek to prevent the tragedies they foresee. To that end, each usually recommends a course of action that, if pursued, he believes will effectively forestall the disastrous conditions he envisions—thus Fuller and De Gaulle on tanks, Mitchell on bombers, and Churchill in the thirties on the German threat. In others still, the cure is implicit in the warning: *prepare yourself.*

To a degree Winfield Scott with his derided Anaconda Plan for the prosecution of the Civil War belongs among their ranks. Blockade at sea, split the Confederacy by gaining control of the Mississippi —these broad strategic moves would throttle the secessionist states. Union sentiment would arise in the encircled area, and the war would be over. The plan did not, perhaps could not, achieve its political end. Although scoffed at, it was adopted on a piecemeal basis. Fortunately, Grant himself early perceived the tremendous importance of the Mississippi; in the face of the negative attitude of Halleck, who was both cautious and disdainful, with Foote and Porter he pushed on to its southward exploitation.

Thus some prophets find their disciples and gain a quick vindication. Others, long buried, scoffed at in their day perhaps as bitterly as was old "Fuss and Feathers," survive only in the murky recesses of libraries. They strike fire through those who peruse them and see close at hand, or even present, the happenings they foresaw; they make their impact now because what they saw in the distance has partly taken

Homer Lea believed that the only real security, the one sure deterrent to war and the final assurance of victory in the event of war, lies in building and maintaining an army flexible and sufficient for all needs

place; they are valuable because this partial fulfillment should give validity to the rest of what they say.

It is to some of these rather neglected *visionaries* that this article invites attention. Long before communism was to become a household word, these foresighted men perceived with amazing clarity the threat from the Russian East. Some sensed the menace perhaps on what would seem to be a basis of pure mysticism; others gauged it through the application of those immutable principles that govern the rise and fall of nations and empires.

Commodore Perry

After two voyages in his black ships, Commodore Matthew C. Perry had, in 1853, successfully treated with the Japanese; he had opened that feudal and isolationist kingdom to the trade and intercourse of the United States. What he saw there and in other parts of the Far East made a profound impression on him. Other issues—larger issues—filled his mind. He spoke of these at Harvard University:

It requires no sage to predict events so strongly foreshadowed to us all; still 'Westward will the course of empire take its way.' But the last act of the drama is yet to be unfolded; and notwithstanding the reasoning of political empirics, Westward, Northward and Southward, to me it seems that the people of America will, in some form or other, extend their dominion and their power, until they shall have brought within their mighty embrace the multitudes of the Islands of the great Pacific, and placed the Saxon race upon the eastern shores of Asia. And I think, too, that eastward and southward will her great rival in future aggrandizement (Russia) stretch forth her power to the coasts of China and Siam; and thus the Saxon and the Cossack will meet once more, in strife or in friendship, on another field.

Will it be in friendship? I fear not! The antagonistic exponents and absolutism

Commodore Matthew C. Perry

must thus meet at last, and then will be fought this mighty battle on which the world will look with breathless interest; for on its issue will depend the freedom or the slavery of the world—despotism or rational liberty must be the fate of civilized men. I think I see in the distance the giants that are growing up for this fierce and final encounter; in the progress of events that battle must sooner or later inevitably be fought.

These enduring words were spoken by Perry in 1855 before the American Geo-

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Lieutenant Colonel Daniel J. Kern is president of a firm engaged in the production of historical and documentary films. He is a mobilization designee to the Special Warfare Division, Office of the Deputy Chief of Staff for Military Operations, Department of the Army. He received his A. B. degree from Fordham University and attended the U. S. Army Command and General Staff College in 1952 and 1960. On active duty with the Army from 1941 to 1946, he served in Europe during World War II.

graphical and Statistical Society, at Harvard, and later published by D. Appleton and Company. What to him was discernible from the wider, more expansive perspective of the mid-century had appeared evident to Napoleon earlier, but quite naturally, set in terms of the rather more confined theater of the European peninsula.

Should there arise a Czar with hair on his chest, he could possess himself of Europe. He may begin his operations in Berlin and Vienna, throw some firebrands into Italy, and enter Paris in triumph to proclaim himself a modern liberator. You will ask for what purpose? To establish a new social order, a blessing that Europe is waiting and yearning for.

The exiled Emperor, resigned and contemplative, uttered these remarkable words to his biographer, Count Las Cases, as he lived out his last days on the isolated mid-Atlantic rock of St. Helena. Two decades later—in 1835—after the political observer De Tocqueville had the opportunity to see at first hand the rising power and industry of the United States, he set down in his *Democracy in America* those famous lines that have so often been quoted in recent years when the aims of the Soviet Union and America have been discussed. There is no point in repeating here lines that in themselves cannot be vitiated by any amount of repetition, but which, through careless frequency of quotation, may vitiate the reader's interest. As a political rather than a military statement, they do, however, affirm the fears of Napoleon and point the way to the prophetic utterance of Perry 20 years later.

Many others like Perry, statesmen, legislators, soldiers—notably at the turn of the century—recognized the vital significance of the Pacific arena. There were Admiral Mahan, Senator Beveridge, and Secretary of State John Hay ("As China goes, so goes the world"). General Arthur MacArthur and his son Douglas were wedded to the principle stated by Beveridge, "The power that rules the Pacific . . . is the power that rules the world."

Homer Lea

Into this arena, equally convinced of its importance, dedicated to its better aspirations, tied to its Far Eastern shores through romance and the plain geographic fact of dwelling on its California coast, strides a colossus of military prophets. Physically infirm, diminutive and frail-bodied, weak-sighted, and, indeed, with a crooked spine, there now appears on the scene a boy in whom indomitable will and cold, disciplined intellect—welded by some unaccountable and perhaps sportive genes—produce the flame of strategic brillance. He is Homer Lea.

Prevented by bodily infirmity from entering his country's service, he became a lieutenant general in the Chinese Republican Army; hardly big enough to heft a fair-size sword, he had British and American generals of high rank write the introductions and prefaces to his books. Desperately eager to lecture at the Military Academy at West Point, but never invited, he inspected, after the most flattering overtures, the German Army on maneuvers, seated at the side of his host, the Kaiser. The target of pacifists here, he consulted again by invitation with the British Chief of the Imperial General Staff, Field Marshal Lord Roberts and surveyed the English coasts for possible invasion points. Told by Dr. Sun Yat-sen that he would appoint him chief of staff if he became head of the hoped-for Chinese Republic, Lea told him: "Appoint me Chief of Staff now, and I'll make you president of China!"

Lea quite patently had the stomach of a general and the strategic grasp of a Von Moltke. Above all, he had, through the assiduous application of the principles he had developed, the ability to calculate, with what events have shown to

be remarkable precision, operations that belong to the future. His predictions—and that is at once an inexact and yet appropriate word—are disclosed for any reader's profit in his two books, *The Valor of Ignorance* and *Day of the Saxon.*

Sees World Threats

The first book was published in 1909 and deals largely with American complacency and unpreparedness. In it Lea advised the

Homer Lea in the uniform of a lieutenant general, Chinese Imperial Reform Army

United States of the inadequacy of our military defenses and warned of the danger to come from an expansionist Japan. The second, finished after he had fought for the last time for China's freedom, was published in 1912. It was a work of broader scope than the first, in that Lea applied the principles set forth in the first book to the future problems of Great Britain, Germany, Japan, and Russia.

Lea foresees, for example, the series of conflicts between Great Britain and Germany.

In this epoch of wars upon which the Empire is about to enter, hopes of peace are futile; constitutions and kings and gods are without avail, for these are the old, old struggles that govern the growth and dissolution of national life.

In the almost clairvoyant brilliance of his reasoning, he laid it down that Great Britain, even if victorious in a succession of wars with Germany, would be so exhausted that she would suffer the loss of her empire.

Lea dealt at length with Japanese aspirations in the Pacific, showed how and where they would invade the Philippines, and estimated the time required. He maintained that the United States would be incapable of holding the islands in the event of a struggle with Japan. He blueprinted the tactical scheme by which Manila would be taken. A force of Japanese at least double that of the American and native defenders, divided in two columns, would proceed from Lingayen Gulf on the north and Polillo Bight on the east, and overpower the defenders. Against our forces in 1942 of 55,000, Japan actually employed about 200,000. Lea estimated that three weeks would be required for the task. Writing in 1908 with no knowledge then of the airplane as a future military arm, Lea was off the mark by only five days. Manila fell, after neutralization of our air arm, to the two Japanese columns his maps outline, in 26 days—34 years after he wrote.

Nearly all that aroused him, all that he foresaw and stated in the *Valor of Ignorance,* is now past history. Still in his second book, Lea warned England that failure to maintain an adequate military establishment would invite German aggression. He pointed out that topheavy reliance on her fleet was dangerous, because naval action could not be decisive. If the naval arm defeated Germany's, the major task of conquering Germany on the ground still would have to be accomplished. He,

thereupon, correctly delineated the theaters of war for the conflict he saw coming between the two powers, and the theater he mapped out for English operations was the one in which their hastily augmented ground forces had to fight.

Two global wars have verified the conclusions Lea reached in each of his books. It is to the *Day of the Saxon*, however, that we must now look for what he has written of the still uncertain future.

Empirical Principles

Lea's conclusions flow, as I have said, from the application of his principles to events and conditions. They are empirical in nature and are derived from his vast reading of history and his study of war, although he terms them his philosophical deductions. The impression is strong that Lea may have been influenced to a large degree by the writings of Admiral Mahan. There are signs of definite influence, I think, but they appear, when they do, only in certain of Lea's conclusions as they apply to a specific situation—for example, his insistence on the necessity of a two-ocean fleet for the United States. In the derivation of his principles, however, and in their statement, he is uniquely Lea:

Two principles governing the political relationships of nations may be stated:

1. The duration of national existence depends upon a nation's physical power to remain or become supreme over other political entities whose interests are convergent.

2. A nation's physical power must remain constant in its capacity to prevent dictation, conquest or supremacy by other states whose interests are convergent.

Lea would not have viewed the "cold war" between the Soviet Union and the United States—or between East and West—as many do, as a phenomenon unique in history or peculiar only to the immediate present. His basic thesis was that wars are caused by an acute convergence of interests between the contesting nations, the angles of which have been remorselessly approaching each other—perhaps for decades, perhaps for centuries. This would, as a matter of fact, have found confirmation in today's stark conditions.

Nations in their development are constrained to given lines by their geographical environment. Two nations situated in different parts of the world and inhabited by different races will progress along identical lines if the geography and climatic conditions of their respective countries are relatively the same. When, moreover, we find two nations whose welfare and greatness are dependent upon the acquisition of the same sources of wealth or power, and to secure which the same means are employed, then we are at once cognizant of this salient and at the same time ominous condition, that so long as these two nations continue to be of relative strength their interests and lines of expansion are so acutely convergent that in due time they enter into that fatal Punic era wherein even peace is war.

Lea applied this axiom to the relationship of England and Japan. He held it was a gross error for England to have allied herself with Nippon, despite her motives of thus checking Russia in the Far East. He pointed out that each was an insular empire, each by nature a maritime power, each in the Pacific "dependent upon the same sources of wealth or power"—they were in fact rivals, he asserted, and not natural allies.

Japan's expansionist program became clear enough—so clear that the Netherlands, Great Britain, and the United States agreed by April 1941, in a mutual support policy, to declare war if the Japanese moved west of Bangkok or south of the Isthmus of Kra, or if they occupied Timor. Every one knows that now. But did there exist prior to that, between Great Britain and Japan in their misalliance, "that fatal Punic era wherein even peace is war"? Were there traces of it

here and there evident to sensitive observers?

Something G. K. Chesterton wrote in his *Autobiography*, published in 1935, may be revealing. He writes of an undated incident that appears to have taken place in the late twenties—a dinner of some sort attended by British politicians and writers, at which Japan was discussed. It became apparent to one of the group, Chesterton records, after each one had his say, that "every manjack of us, for some reason serious or otherwise, seems to hate the Japanese. Why are we not only allies of the Japanese (the speaker asked) but forbidden to say a word against them in any of the newspapers? Why is it the fashion or convention to praise the Japanese everywhere and all the time?" Chesterton concludes, "But at that, I think, Mr. Churchill smiled the inscrutable smile of the statesman; . . . and we have never had the answer to the question, either then or since."

Origins of "Cold War"

Had he lived, of course, the brilliant Mr. Chesterton would have had some sort of answer in December 1941. The simple but obscure fact is that England and Japan were in the inevitable state of cold war foreseen by Lea. It may have been rather silent, and less vociferous than today's, because it was a cold war between two rather subtle and secretive peoples. It was no less intense than ours today for all its frigid restraint; and if it were a hushed one, it was, nevertheless, electric with the silence of vast polar wastes. The angles of the converging interests could not have been more acute. The one military man at the affair, a major, later General Seeley, had put his finger on the nub of the business when he agreed that he "distrusted Japan for certain Imperial reasons connected with our colonies and national defense."

The inscrutable Mr. Churchill—who undoubtedly knew a cold war when he saw one—has himself given us the term, as he has so many others in currency. Writing in 1938, in the second volume of his *History of the English-Speaking Peoples*, he says of Elizabeth I, ". . . she was compelled to move into a cold war in the Netherlands, and an undeclared war at sea. . . ."

In his *Day of the Saxon* Lea gives one chapter to Russia. He quotes a couple of pages from Czarist General Kuropatkin with only a nominal footnote to indicate his source. Beyond his thus noting Russia's expansion along five main lines of advance from the central core of Muscovy, Lea's analysis of the nature of Russia is most compelling and, again, prophetic.

As the title of the second book might indicate, Lea's diagnosis was that the wars he foresaw would be essentially racial in cause and in character. Teutonic racial avarice, he maintained, would launch Germany in contest with the British Empire; Slavic aggressiveness would continue to animate Russian expansion. Lea had gathered notes for a third book he intended to put out under the title of *Swarming of the Slavs*. His death at not quite 36 years of age soon after publication of *Day of the Saxon* prevented the utterance of what might have been the sharpest warning he ever sounded. One line from that last book comes to mind. In dwelling on the causes of war, Lea wrote: "In the past it was the individual who was the predominant factor; today, nations; tomorrow, races."

Russian Expansion Revealed

With this in mind he discerns the glacier like advance of Russian expansion, the movement imperceptible, the objective scarcely noted by others. One day the rest of the world is confronted by a *fait accompli* and often is stunned to find that the Bear has increased the wide arc of his range. The expansionist program under communism is more obvious than it was under the czars. The Soviet Union's operations on her western frontier from 1939 on restored all the territory lost in

1919, and the agreement at Yalta all that Japan had taken away in 1905.

At the time Lea wrote, Russia had just been defeated in that war and was in a weakened condition. Still, he noted that both the 18th and 19th centuries had begun with disasters for Russia; and then that the battered *Motherland* had nursed her wounds, renewed her strength, and gone on to eventual victory. The years 1905 and 1917 were ones of defeat and loss; 1945 of victory and territorial gain that extended Soviet hegemony over areas greater than ever before in her history.

The two great victors of 1945 now confront each other over an exhausted Europe and an uneasy Asia. Perry's Cossack looks outward from the frontline of a power vacuum into which Slavic force moved almost without resistance; his Saxon, from the once oceanic fortress that now can be bridged by ballistic missiles. Lea pointed out that the defense of the United States lay, not on the Atlantic and Pacific coasts, but properly on the farther shores of both oceans. When the security of the Pacific flank was threatened by the move on occupied Japan through Korea in 1950, the immediate reaction of the United States would have been viewed by Lea in the same light as he viewed Japan's in 1904 against Russia, as the only possible and correct military retort.

Conversely, he would have regarded, I think, any threat to the security of the Panama Canal through disturbance of our established Caribbean bases as intolerable.

Disarmament Proposals

But this is a parenthesis. Under today's conditions the slogan "Power for Peace" would have earned his heartiest approval, for it is a catch phrase that reaffirms his statements on the deterrent value of an adequate military establishment. On the other hand, any proposal of a disarmament program as a means of lessening the risk of war would have earned his scorn. He would have replied icily that such proposals, however sincerely meant, deal only with effects and not with causes. Dealing with causes, he would have dismissed ministers' conferences and summit meetings as inutile, as he did international arbitration in his day; for such political synods, whose value is more propagandistic than it is practical, concern themselves generally only with the proximate and even apparent causes of war, and rarely with the deep-seated basic issues. We can be sure he would have reserved his most biting scorn for those who adorn their hopes of enduring peace with cultural exchanges and tourist travel, and in getting things down to a man-in-the-street level.

Without prior removal of the actuating causes, or at least the attempt at their removal, Lea would have automatically regarded with a piercing eye any overtures to relieve the tensions of the "ominous condition" we now call *cold war*. And like Laocoon, he would just as quickly have seen through any phony and meretricious gilding of the olive branch.

Since time did not serve Lea and he could not, therefore, have studied the Communist mind in action, let us consider for his and anyone's benefit one final statement from that source:

War to the hilt between Communism and Capitalism is inevitable. Today, of course, we are not strong enough to attack. Our time will come in 20 or 30 years. To win we shall need the element of surprise. The bourgeoisie will have to be put to sleep. So we shall begin by launching the most spectacular peace movement on record. There will be electrifying overtures and unheard of concessions. The capitalistic countries, stupid and decadent, will rejoice to cooperate in their own destruction. They will leap at another chance to be friends. As soon as their guard is down we shall smash them with our clenched fist.

These words were pronounced before the Lenin School of Political Warfare in

1931 by Dmitri Z. Manuilsky, who was later, in 1949, presiding officer of the United Nations Security Council. The new dimension added to the monolithic Soviet advance would not have budged Lea from his basic position on what carries nations "into that fatal Punic era wherein even peace is war." We are constrained through courtesy and propriety to hear with straight faces bland proposals for total disarmament—for the complete elimination of military establishments, academies, generals, admirals, and hardware.

Ground Forces Paramount

While Lea would have been in tune with Mahan on perceiving the fallacy of disarmament, in his one essential conclusion he would stand alone. Thereupon Lea would have been quick to demonstrate that the ground forces constitute the one singular decisive component in war. In *The Valor of Ignorance* he provides a chapter on the role of navies in order, I think, not to mislead his readers as to the relative significance of the ground and naval forces. He had shown earlier that the war in the Pacific against Japan would be largely naval in character and he wanted to make it clear that the decisive role, however, had to remain with the ground forces.

To that end he would urge today, as he did in 1909 and 1912, and preached all his brief life, that the only real security for the Republic, as he loved to call these United States, the one sure deterrent to war and the final assurance of victory in the event of war, lies in building and maintaining an Army flexible and sufficient for all our needs. Disdainful of ill-trained militias, he reiterated that the Army must find its augmented strength when the need arises in a Reserve of the Army, organized and trained by that Army. *One Army* might be a fitting epitaph today for the hunchback general, whose genius, like his predictions, has been too much neglected, and whose honor has been too long unsung.

His fervent predecessors in military prophecy are today, like him, at best only vivid memories. The colossus they contemplated in foreboding lives on—autocratic, aggressively expansionist, imperialist—its nature unchanged.

Napoleon: "Who does not shudder at the thought of the gigantic mass which cannot be attacked either on the flank or in the rear, which overwhelms everything when victorious, and which, when defeated, can withdraw to cold and isolated regions?"

Perry: "If Russia possessed Japan, she would have an abundance of harbors, unrivaled in the world for excellency, and with her resources would control the commerce of the Pacific. It is not, therefore, the interest of any part of the commercial world that Russia should ever own Japan."

Stalin, in 1937: "If we held Japan, we would be insuperable."

And De Tocqueville: "The Anglo-American relies upon personal interest to accomplish his ends and gives free scope to the unguided strength and commonsense of the people; the Russian centers all the authority of society in a single arm. The principal instrument of the former is freedom, of the latter, servitude. Their starting point is different and their courses are not the same, yet each of them seems marked out by the will of Heaven to sway the destinies of half the world."

It is the peculiarity of prophets that they should be honored, if at all, and sometimes in this manner, only long after their lips are sealed in death. In their honor, then, let us grant to them posthumously their deserved and very human privilege of being allowed to say, "I told you so!"

ENGLAND'S LAST INVASION

Dr. Cornelius C. Smith, Jr.
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ON 14 October, A. D. 1066, two armies faced each other on a gentle rolling field some 45 miles south of London. The great battle which ensued began at about 0900 and lasted until darkness. When it was over, a new era of English history began. By all odds, the Battle of Hastings was the most important ever fought on English soil.

In a very real sense, the clash was inevitable. On one hill, poised for battle, stood William, Duke of Normandy, who had been promised the English throne on the death of Edward, the "Confessor." On another small rise stood Harold, Saxon King of England, who had gained that throne when Edward died. Each man was convinced of his right to the crown; each man was willing to fight for it.

William and Edward were cousins. In 1051, just 15 years before the great "showdown" battle, William had visited Edward in England and exacted from him the promise that William would be the next King of England. Two years later William strengthened his claim by marrying Matilda, daughter of Baldwin V of Flanders, who traced her lineage from Alfred the Great.

William was born at Falaise in 1028, son of Robert "The Devil," Duke of Normandy, and a commoner named Arletta. An illegitimate child, he was, nonetheless, Robert's pride and joy. Robert, upon embarking to Jerusalem on a crusade, induced the Norman barons to acknowledge William as his successor. Robert died on the crusade, and the barons carried out his wish. William was seven years old.

The next 12 years were full of wildness and anarchy in Normandy, and William was kept in hiding most of the time against the possibility of his murder. Trained in a hard school, he exhibited a precocity unusual in one of his years, and proved his courage in battle on several occasions. Constantly hunting or fighting, he developed tenacity of purpose and the ability to make quick and proper decisions. When he was 20, he helped King Henry I of France to quell uprisings in Bessin and Cotentin. Later, he again helped his sovereign in the overthrow of rebel forces at Val-des-Dunes. In 1048 he joined Henry again in opposing Geoffrey Martel of Anjou. Later, this alliance was reversed, and Henry prevailed upon Geoffrey to help in fighting William. In two contests—Mortemes, 1054, and Varaville, 1058—William was victorious. Soon after Varaville, both Henry and Geoffrey died.

Harold Succeeds Edward

During Edward's reign as King of England, the strong man was Godwine, Earl of Wessex, a West Saxon thane. Godwine, prudent statesman, skillful warrior, and trusted lieutenant, served as the King's chief advisor in matters foreign and domestic, and in essence reigned in his stead during the King's periods of absence. When Godwine died, this power trans-

A new era of history began with the Battle of Hastings—by far the most important ever fought on English soil. As a result of the Norman Conquest, England was brought into the dynamic arena of world affairs

ferred to his son Harold who became King of England two days after the death of Edward. Thus was the stage set for the clash which had to come between Harold, King of England, and William, Duke of Normandy.

Harold had been the victim of a shipwreck off the Coast of Normandy in 1065. His unexpected "visit" had been something in the nature of privileged incarceration for Harold, since William had detained him until he promised to support William in his bid for the English throne on Edward's death. When Edward's time drew near, neither he nor Harold were disposed to keep the promises made to William on the issue of succession. Edward acknowledged Harold as his successor and the latter was crowned at Westminster Abbey on 7 January 1066.

Prepares Invasion

The news enraged William. He denounced Harold as a usurper and began his preparations for the invasion of England. Throughout all of Normandy, Bretagne, Aquitaine, Burgundy, Flanders, Anjou, Poitou, and Maine, preparations became feverish. The affair took on the characteristic of a holy war. Lawless barons from the Rhine country joined his banner, as did knights, varlets, and vagrants from all over Europe. William obtained a consecrated banner from Pope Alexander II, along with the blessings of the Church for his undertaking.

There was some difficulty in convincing the barons of the wisdom of a cross-channel invasion. Threats and persuasion prevailed, however, and most of the faint-hearted were won over with promises of land after the victory should be won. Earldoms awaited the nobles; bishoprics and abbacies were promised the churchmen; and land was held up to the soldiers. Few could resist. "Good pay and broad lands to every one who will serve Duke William with spear, sword, and bow." Thousands flocked to his banner.

William was handed an added advantage when Harold's brother Tostig, consumed with jealousy and frustration at Harold's accession, defected and swore to depose his brother. He made an alliance with Harold Hardrada, the Norwegian Chief, who was planning an invasion of England in the north. Harold would face able adversaries on two fronts, and he had no way of knowing which force would make the first landing.

Throughout the spring and summer of 1066, the ports along the Norman Coast were feverishly engaged in building ships for the channel crossing. William's army, approximately 60,000 strong, was given training exercises near the ports to be ready for embarkation on call. These exercises instilled discipline into the troops, but they had something even more powerful serving to weld them into a cohesive force. Fanaticism, love of adventure, conquest, the lure of plunder—all of these were powerful factors in the forging of William's invasion force. There were nobles and knights by the score. The *Black Letter Chronicle*, published in 1572, lists over 700 names, among them Hugh d'Etaples, Guillaume d'Evreux, Roger de Montgomery, Charles Martel, and Guillaume de Warrenne.

Force Concentrates

The point of concentration for the invasion force was at the mouth of the Dive River, between the Seine and the Orne. The little seaport towns nearby—Villers

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Sur Mer, Trouville, Honfleur, Courseulles, Arromanches—were all active. Just 40 miles to the west lay a spot destined for greatness centuries later—the name of the future battleground, "Omaha Beach." A few miles farther on lay the place which was one day to be called "Utah Beach."

The original plan was to begin the invasion in mid-August, but strong northwest winds delayed departure of the fleet until September. One wonders if for all his strength, William may have suffered the same agonies of decision that General Eisenhower did prior to his channel crossing in June 1944.

Norwegian Assist

In any case, William's task was simplified when Harold pulled his fleet away from the English Channel ports to help repel the Norwegian invasion in the north of England. Racing to stave off disaster in that quarter, Harold arrived at Tadcaster after a forced march on 24 September. On the following day he occupied York under the very noses of the confident Northmen, unwilling to believe that any adversary could arrive from the south of England in such a hurry. As dawn arose on the 26th, Hardrada's army set out to put York to the torch. Halfway into the city the invaders saw a huge cloud of dust directly in their path. Hardrada thought that the cloud was sent boiling upward by the scurrying feet of frightened Northumbrians, come to do him homage. As the cloud settled, there appeared in view the English Army, drawn up in battle formation.

Hurriedly, Hardrada drew his forces about him, and took his place at the center beneath his famous banner, the "Land Ravager." In an attempt to bluff the English, he offered peace for an equal division of the kingdom. Tostig stood at his side, half expecting, half hoping that Harold would show the white flag. Harold's answer was more courageous:

To my brother Tostig I will give the Kingdom of Northumberland, for he is an Englishman. Hardrada is an alien and a foe. I will give him six feet of English ground to bury him in. Or, since he is taller than most men he shall have seven feet, and that is all the English land he shall take from me.

The Battle of Stamford Bridge has never been properly documented, hence the actual sequence of events is lost to us. Hardrada and Tostig were slain, and the invading force dispersed. A few men escaped by sea, but many perished by drowning in the mad scramble to clamber back upon the Norwegian longboats. Hadrada's son Olaf was released and sent home to Norway. Tostig was buried in the Walls of York Cathedral.

Channel Crossing

Meanwhile, William set about the task of embarking his army for the invasion of England. By now, prevailing winds were blowing from the south, a sure sign that the time for the crossing was propitious. There were about 3,000 craft assembled to ferry the army and its accouterments across the open water. The order for embarkation, when it came, was the signal for the wildest enthusiasm. Men scrambled to be the first aboard their assigned vessels, frequently leaving behind piles of gear lest in the trample they might be left standing on the shore. Some men carried armor and weapons aboard; some yoked themselves to wagons loaded with wine casks, and pulled these on board amid the jocular shouts of soldiers nearby. Food was not a problem; conquered England would supply the nutritional needs of this army.

Night came on as the great fleet put to sea. In his flagship the *Mora*, the Duke hung a lighted lantern on the masthead to serve as a beacon. It is doubtful that many of the ship captains could see it bobbing in the darkness; there were approximately 700 larger vessels and 2,300 smaller ones under way. It is said that

BATTLESITE
YORK
STAMFORD BRIDGE
TADCASTER
HAROLD'S ROUTE TO LONDON AFTER DEFEATING HARDRADA AT STAMFORD BRIDGE
ENGLAND
LONDON
THAMES R.
THE WEALD
BATTLESITE
HASTINGS
STRAIT OF DOVER
PEVENSEY POINT OF LANDING
ENGLISH CHANNEL
ROUTE OF WILLIAM'S INVASION FLEET
SEINE R.
INVASION STAGING PORTS
HONFLEUR
TROUVILLE
COURSEULLES
VILLERS SUR MER
ARROMANCHES
INVASION TRAINING AREA
ORNE R.
CORNELIUS SMITH
SCALE
0 25 50 75 100
STATUTE MILES.
FRANCE

gay music issued forth from many of the vessels, and that wine was taken freely on the crossing.

At 0900 the morning of 28 September 1066, the prow of William's flagship touched English soil. As he jumped ashore, he tripped and fell, an evil omen in the horrified eyes of the nobles around him. Rising to the occasion, he clutched a handful of earth in his fingers and said: "See, I have already taken a grip of this land, and so far as it reaches, by the splendor of God it is yours and mine!"

Landing Unopposed

The landing was made at Pevensey, a flat beach near where Eastbourne now stands. Expecting opposition, thousands of fully caparisoned archers jumped into shallow water and waded ashore to take up combat positions. There was no opposition; Harold was busily engaged 200 miles away. Putting up a rough camp, William scoured the countryside in all directions for forage and provisions. Harold would appear, sooner or later. When he came, William would be ready.

Harold was still in York when he heard the news. He had lost many of his officers and many of his men at Stamford Bridge. In a way, his signal victory there was to prove his undoing. Seasoned troops were not easy to replace. Still, he had no inclination to give up because of his losses and he hurried to London to line up reinforcements. There he manned 700 ships to sail down the Thames, round North Foreland spit, and prevent the escape of the Norman horde by sea. He then offered William money to quit England without bloodshed, but received a curt reply. Philosophically, Harold said: "The God of battles will soon be the great arbiter of all our differences." And so he was.

Harold had legitimate cause for concern over the possible behavior of his troops in an action against an army blessed by the Pope. Excommunication then, as

now, was no trifling matter to the faithful. As he took the field, there seemed to be no lack of resolve, however. With him marched all of his thanes, franklins, housecarls, the men of London and Kent, and many from the shires of the east and south. He pitched his camp on a hill near Senlac, and took up a position across the road leading from Hastings to London, his back to the forest of Anderida, the "Weald." In a camp nearby, the Norman Army was making its final preparations.

Preparation for Battle

On the evening of Friday, 13 October, all hands knew that the great battle would be fought on the morrow. The English, confident of success, were merry, drinking ale and singing the old Saxon songs. The Norman host passed the time in prayer. Odo, Bishop of Bayeux, and Geoffrey, Bishop of Coutances, went through the camp hearing confessions and exhorting men to repent against the possibility of death in battle.

On the morning of the fateful day, William arose early, heard mass, and received holy communion. Thereafter, the army marched from Hastings to the hill of Telham, where it could see Harold's camp. There, the Norman knights put on their armor and exchanged their light mounts for the great barbed battle horses. In his haste, William put his coat of mail on backward. Again his wit was ready. "A good sign; a Duke shall this day return a King!" Going into battle, William wore a string of holy relics about his neck. Beside him rode Toustain the Fair, bearing the consecrated banner of the Pope. The Norman armor consisted of shirts and hauberks made of small interlacing iron rings. Their saddles were high, fore and aft, and many of the horses had barbed chest plates with which to ram and skewer the enemy headon. Although the Saxons had iron-ring armor too, most Saxon armor at Hastings was made of overlapping leather plates, capable of stopping arrows at moderate distances, but practically useless against broadsword and battle-ax. The Saxons wore their hair loose and flowing, and their beards long, much like the Celtic and Teutonic warriors of earlier times. The Normans wore their hair close-cropped, and were clean shaven.

Battle Lines Drawn

The Norman Army was drawn up in three long lines. The first, under the command of Roger de Montgomery, was comprised of light infantry and archers. The second, made up of heavily armored men, was led by Charles Martel. The third was commanded by William himself, and was made up entirely of cavalry. In length this line outflanked the first two considerably.

Harold drew up his forces on a rising mound, with his flanks and front protected by deep trenches. Behind the trenches he lined up ballistae and catapults. In the center he took up his own position beneath his personal standard, a large flag with the figure of a fighting Saxon warrior woven in the midst of precious stones. Nearby waved a second standard, that of Wessex, with a great golden dragon writhing and spitting fire in colorful array. The first line was made up of the men of Kent and London, all armed with javelins, swords, and battle-axes, and attired in coats of mail. The men of the shires were not similarly armed. While some carried battle implements, many had only pikes, pitchforks, or staves. In the center of his host stood Harold, last Saxon King of England, flanked by his brothers Gyrth and Leofwine, all resolved to send the Normans reeling back, or die on the spot.

The Clash

At 0900 on 14 October 1066, the entire Norman Army began to move forward, the three lines moving in unison. As they advanced they sang the battle song of Roland, led by the minstrel Taillefer riding in front and tossing his sword up

in the air and catching it. Slowly and majestically came the great horde, armor glinting in the morning sun, pennons waving jauntily in the breeze. Stopping before the trenches, the first line poised and the shouts went up. "God is our help!" cried the Normans. "Christ's Rood! the holy rood!" answered the Saxons, and the battle was joined.

The air was suddenly filled with arrows and javelins, and many fell on both sides. but fought on. William had three horses killed under him. On the fourth, he rose in his stirrups and shouted: "Look at me, I live, and by God's help shall conquer!"

Again and again the Normans charged, trying to force a passage through the mass of bodies. In the dense mass of men, effective fighting became difficult; the scene was that of a hacking, surging, swearing mob, like a great snake writhing in agony. William tried to reach Har-

At close quarters, the vicious stroke of the battle-ax was the worst of all. Coats of mail were ripped asunder; men were decapitated; arms were lopped off at a stroke; horses came crashing down as legs were severed, squealing piteously in pain and terror. After great volleys of arrows showered down upon the heads of English foot soldiers, the Norman cavalry would pound into the fray, slashing, cutting, and trampling the bewildered defenders under foot. Through all of this, Harold stood firm. He lost an eye by an arrow, old but could not. He struck down Gyrth, however, and a few moments later Leofwine went down under the sword of Roger de Montgomery. Harold remained on his feet, blinded, and as resolute as a lion. There has long been controversy over whether the English troops fought from behind palisades. Early chronicles left the impression that they did, and that the battle took on the aspect of a siege with the English staunchly dug in behind well-emplaced breastworks. Later writers, delving into records of the fighting, have

found nothing to substantiate this. It is more likely that the only "fortification" employed by Harold's men was the customary shield wall used by the infantry of the times.

The repeated charges had weakened the English considerably. Now William pulled back and ordered his archers to shoot their arrows in high arching trajectory. The rain of missiles was devastating. Then came more charges and hand-to-hand combat. The casualties were beginning to tell on the English, but they hung on. Twenty Norman knights swore to take Harold's banner or die. In the first rush, 10 fell. One knight, his hand closing on the staff to yank it down, had his skull cleaved in two by a single ax blow. The second rush brought the standard down, and in its place the jubilant attackers placed the banner consecrated by the Pope in Rome.

Battle Ends

Harold, dying now from many wounds, lay upon the ground. Several knights recognized him and rushed in to finish him off, literally hacking him to death. Still the fight continued, the Saxon warriors battling desperately to hold their ground. No prisoners were taken, nor did the English retreat until darkness fell. The battle had lasted throughout the day. From noon until dusk it had been a fearful melee, and now it was over. Only a remnant of the English Army got away, into the forest of Anderida.

On the field lay 15,000 Norman dead, and an even greater number of English. Jubilant at the great victory, Norman horsemen galloped over the corpse of their foes, trampling them in final ignominious assault. William had a great space cleared in the midst of the battlefield and pitched a great pavilion, where he feasted with the nobles and knights of his victorious army.

The Norman troops had fought well and deserved the victory. Nonetheless, had it not been for two reckless charges of Harold's men away from their hill and down onto the flat, the outcome might have been different. The first of these was accidental, caused by the surging of the battle in the early stages. The second was induced by William when he saw the advantage of drawing Harold's infantry out into the open.

It is said that Harold's mother offered to give Harold's weight in gold for the purchase of her son's body. The Duke refused, saying: "He guarded the coast while he was alive, let him thus continue in death." Another story has it that the body was recovered by "Edith with the swan's throat," who buried it beneath a cairn at the battlesite where it remained until William relented and burial was made at the church in Waltham. Still another legend says that Harold survived Hastings and lived for many years as a monk in the Church of St. John, in Chester. Most historians agree that he fell in the great battle at Hastings.

So ended the battle, the last serious invasion of England. The Romans had made a successful invasion in earlier times, and the isles had been stormed by Danes and Norwegians for generations. After Hastings, the invasions stopped. Had Philip's Armada defeated Queen Elizabeth's seadogs in the late 16th century, there might have been a Spanish invasion. Had it not been for Nelson, Jervis, Collingwood, Hardy, and the others, Napoleon would surely have launched a French invasion. Had Hitler dared in 1940, there might have been a German invasion. There might have been, but there never was. Since 1066, Britain has stood impregnable.

The Normans Rule

The Norman Conquest had an importance which is almost impossible to overestimate. It opened up a new era for England, giving her people and institutions a character unique in the nation's history. It reversed the trend of the times for nations to break up into separate prov-

inces under nobles of one station or another. Under William, there was introduced a strong centralized government, a political society which was to be the pattern for continental governments later. The Conquest brought England into closer contact with those parts of the continent where trade, the development of town life, and intercourse with other lands were going on with the greatest activity. England was thereby detached from the sluggish north of Europe and brought into the dynamic arena of world affairs. Under William there developed a system of taxation, law courts, and civil procedures quite different from those employed by the Saxons.

While the new King retained many of the good things of English origin, he, nonetheless, made a number of peculiar innovations. One of these was the "fire law," which forbade the building or tending of fires after dark. This was in essence a curfew to keep people off the streets at night, the very name of the law, *Couvre-feu,* meaning to "cover fire." Another strange practice introduced by William was the "wages of battle" law, whereby litigants in law suits settled disputes by physical combat, usually armed with pick-ax and shield.

Census, 1085

Of more lasting interest was the famous Domesday Book. Near the close of his reign, William sent groups of census takers all over England to obtain sworn statements of people concerning the ownership of land. These interviews had to do with numbers of tenants on estates, the amount of tax collected annually from owners, and the real value of each landholding. Lords and peasants were questioned, and a vast mass of detailed information was obtained. Collected, the reports were sent to Winchester for approval and compilation. The result was the Domesday Book, a record in two volumes which has provided posterity with more detailed information of England during the latter stages of William's reign than any other single source.

After Hastings, most of the English nobles had been dispossessed, and their lands given over to William's kinsmen and friends. The rights of Saxon earls and thanes were made forfeit by royal decree; the Domesday Book listed the holdings of the new owners for all to see. Peasants living on the land were not affected; they simply paid their taxes to the new masters and remained in place. The grants to favorites, as listed in Domesday, were frequently enormous. To his brother, Robert of Mortain, the King gave nearly 800 manors; to his other brother Odo, 439, and to Alan of Brittany, 442. At Salisbury, William had his charges swear fidelity to him (the "Salisbury Oath") so that even the largest landholders would dismiss any suggestion of insurrection.

A temperate man in his habits, pious, and steady, William was frequently cold and pitiless in his treatment of others. He was a big man, heavy, taller than most men of his time, of dignified bearing and powerful physique. He was mortally injured when his horse fell upon him near Rouen in 1087. Carried into the city in great agony, he died there on 9 September 1087, in his 60th year. He was buried in his own chapel, St. Stephen at Caen, which he and Matilda had built 34 years earlier. His tomb is marked by a slab, but his bones were scattered by the Huguenots in the middle of the 16th century.

So ends the story of William the Conqueror, victor in his time on many fields. By all odds, Hastings was the greatest of them all.

RADIOLOGICAL MONITORING

Nuclear Battlefield "Must"

Lieutenant Colonel Claude L. Pridgen, *Artillery*
7th Logistical Command (C), Korea

TO OPERATE successfully in an area of fallout a commander's staff must estimate for him the nuclear radiation hazard to which his troops may be exposed in various situations. These staff estimates or predictions are based upon knowledge of the location, size, age, and degree of radioactivity or dose rate of specific areas within the contaminated environment as determined by dosimetry or measurement.

The procedure for making staff estimates of the radiation hazard is to determine the amounts of radiation (total doses) likely to be received during operations. Based on these estimates, sound decisions can be reached regarding maneuver in or through a contaminated area. In order better to understand the problem of total dose calculations, let us first consider the terms method and "tools" involved.

Total radiation doses, principally a result of body exposure to gamma radiation from fallout, involve these variables:

- The time after detonation of initial exposure to fallout. This "time" can be the arrival of fallout particles in an occupied area or the deliberate entry of personnel into an area already contaminated. This variable is termed "entry time."
- The length or duration of exposure or "stay time."
- The "dose rate" of the radiation at the time of entry.
- The degree of radiation protection or shielding, such as tanks, foxholes, and buildings, available to the individual or unit.

When the values of these variables can be determined, total radiation doses may be calculated quickly with the aid of the nomograms shown in Figures 1 and 2. Various nomograms have been developed by the U. S. Army Command and General Staff College as a rapid and convenient means of analyzing the employment of nuclear weapons on tactical targets.

Let us assume that troops in armored carriers enter a fallout area six hours after the detonation (entry time). Radiac meters measure the dose rate outside of the carriers as 24 r/hr (roentgens per hour). The commander has specified that these troops should not receive a total radiation dose greater than 27 r (roentgens) during their stay in the fallout area. The problem is to determine the maximum length of stay in the area (stay time) in which the troops will accumulate no more than the specified allowable total dose of 27 r.

Radiological monitoring is essential for survival on the nuclear battlefield. Supplied with information on total doses of radiation, commanders can make sound decisions regarding operations in a contaminated area

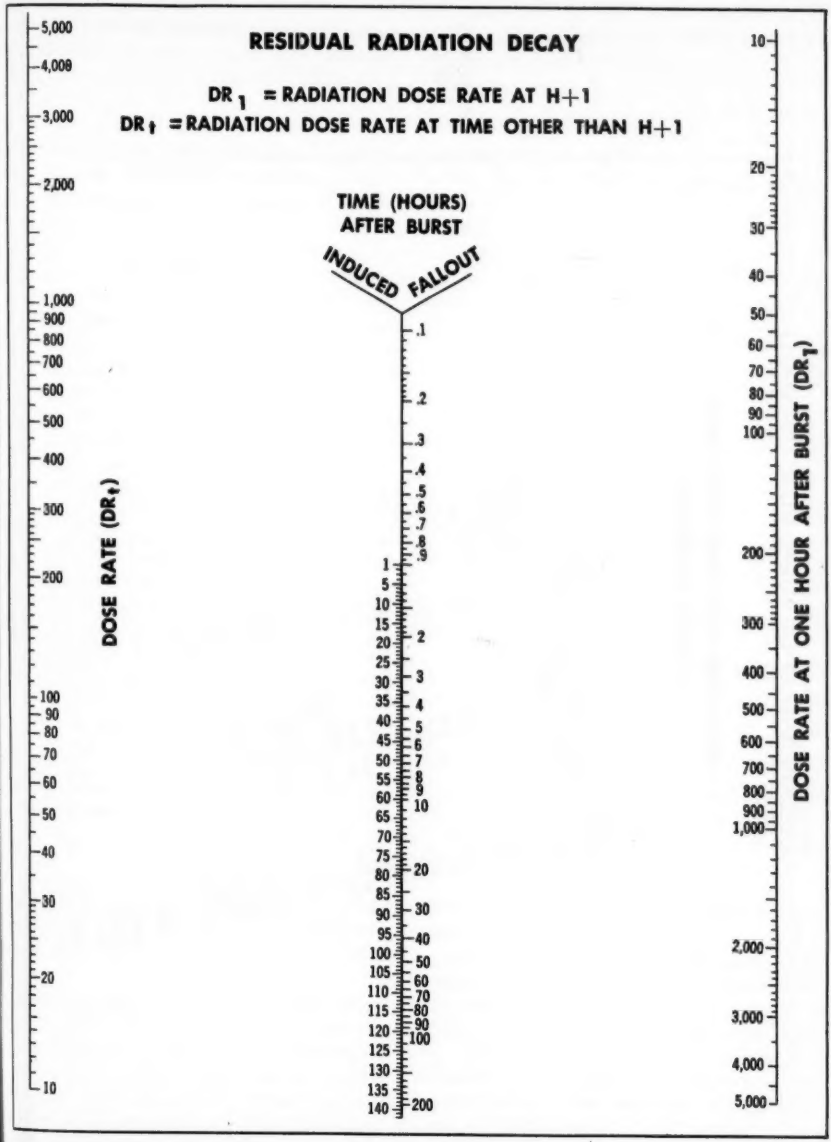
RESIDUAL RADIATION DECAY
DR 1 = RADIATION DOSE RATE AT H+1
DR t = RADIATION DOSE RATE AT TIME OTHER THAN H+1
TIME (HOURS) AFTER BURST
INDUCED FALLOUT
DOSE RATE (DR t)
DOSE RATE AT ONE HOUR AFTER BURST (DR 1)

Figure 1.

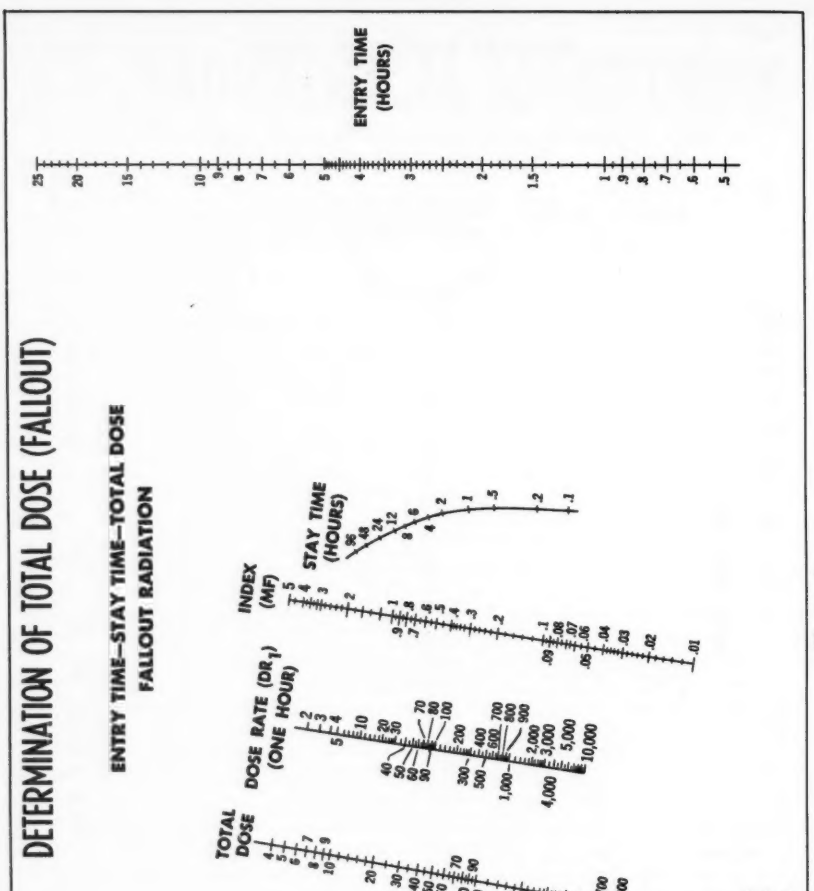
DETERMINATION OF TOTAL DOSE (FALLOUT)
ENTRY TIME—STAY TIME—TOTAL DOSE
FALLOUT RADIATION
ENTRY TIME (HOURS)
INDEX (MF)
STAY TIME (HOURS)
DOSE RATE (DR1) (ONE HOUR)
TOTAL DOSE

Figure 2.

Solution:

Step 1.—Since the total dose nomogram (Figure 2) is based on a dose rate at H + 1 hours (DR_1), the measured dose rate at H + 6 (DR_6) must be related to H + 1 by application of "decay." This is calculated by using Figure 1 and a straightedge. Align the straightedge with "24" on the left scale (DR_1) and "6" on the center (*Time After Burst, Fallout*) scale. Read "200 r/hr" on the right (DR_1) scale.

Step 2.—Since the dose rate was measured outside of the armored carriers the inside exposure rate must be computed. Determine the transmission factor (shielding) for armored carriers from Figure 3 to be 0.25 for residual radiation (fallout). Apply this factor to the DR_1 computed in Step 1 or 0.25 × 200 = 50 r/hr.

Thus far we have the values for three of the total dose variables:

Entry time = H + 6.

DR_1 (in armored carriers) = 50 r/hr.

Total dose = 27 r, specified by the commander.

We can now solve our problem of determining the maximum permissible stay time.

Step 3.—Using Figure 2, align the straightedge with "27" on the *Total Dose* scale and "50" on the DR_1 scale. Note that it intersects "0.5" on the *Index (multiplying factor MF)* scale. Now align the straightedge with this point (0.5) and "6" on the *Entry Time* scale and read a stay time of "8 hours."

This example typifies the information

Environment	Initial		Residual
	Neutrons	Gamma	
Armored carrier	0.8	0.6	0.25
Urban area (in open)	1.0	0.5	0.8
Foxholes	0.25	0.1	0.2
Framehouse			
First floor	1.0	0.7	0.5
Basement	0.7	0.4	0.1
Multistory buildings			
Top floor	1.0	0.7	0.5
Lower floors	0.7	0.4	0.1
Basement	0.5	0.25	0.01
Rough terrain	1.0	1.0	0.8
Shelter, closed (three foot earth cover)	0.1	0.04	0.001
Tanks			
Light	0.7	0.33	0.15
Medium or heavy	0.5	0.15	0.05
Trucks			
¼-ton	1.0	1.0	0.8
2½-ton	1.0	0.9	0.6
Woods	1.0	1.0	0.8

Transmission factors for nuclear radiation—(ratio of protected to unprotected dose or dose rate)

Figure 3.

required to make decisions involving operations in a fallout area. Other situations may require decisions as to the "earliest safe entry time" and the "degree of protection" or "shielding" that must be provided personnel in order that a specified total dose will not be exceeded during a required stay time.

Fallout Prediction

The key variable in total dose calculations is the dose rate of the fallout in a given area. Obviously, the commander would like to know in advance of fallout arrival what the contamination picture is going to be in order that he may preplan his operation. He would like to have a prediction which would show the extent of fallout, when it would arrive at points of interest within the area, and, most important, what dose rates could be expected at certain specified times. For the staff to be able to furnish the commander this information in advance, the capability must exist for accurate, reliable, and timely prediction of fallout data.

Many methods have been developed which attempt to predict fallout patterns which would result from the detonation of a nuclear weapon on the surface of the earth. Two of these methods are illustrated and compared here.

Figure 4 shows the fallout pattern resulting from a surface burst as predicted by the method outlined in Technical Manual 23-200, *Capabilities of Atomic Weapons*, Departments of the Army, Navy and the Air Force, dated November 1957. The circular and elliptical contours represent predicted fallout dose rates at one hour after detonation and the transverse arcs the expected arrival times of fallout in specific areas.

This method of fallout prediction has not proved to be reliable nor accurate when applied to actual weapons tests. Although the predicted pattern purports to present enough specific information on which to make decisions involving total radiation doses, its lack of reliability may encourage decisions which may prove actually to be faulty and dangerous.

In 1958 the US Army adopted a method for predicting fallout which is more general in the nature of the information presented. Figure 5 is an example of a fallout pattern predicted by the US Army method as outlined in Training Circular 101-1, *Prediction of Fallout and Radiological Monitoring and Survey*, dated December 1958. (See editorial note, page 35.)

This method does not attempt to predict the expected fallout dose rates. Rather, the resulting "envelope" is intended to represent the best estimate of the area which will include all of the militarily significant fallout (H + 1 hour dose rates of 100 r/hr or more). Further, it does not imply that the entire area will be covered with uniformly distributed significant fallout. It does mean that no militarily significant fallout is likely to be encountered outside of the predicted envelope.

A comparison of the relative pattern sizes as predicted by the Technical Manual 23-200 and US Army systems is shown in Figure 6. Identical yields and wind conditions were assumed for the comparison.

Due to the unreliability of the prediction systems which attempt to present specific dose rate data and the absence of such information in the US Army System

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of Fallout Prediction, a means is necessary for determining the actual location and dose rates of the radiation hazard. This information must be obtained by instrument measurements after the fallout particles have fallen to the ground. The method of obtaining this measured data is by *radiological monitoring and survey.*

Monitoring and Survey

Radiological monitoring is the use by a person (monitor) of a radiac instrument (meter) to detect the presence of radiation and measure radiation dose rates. These measurements are made by trained personnel within their own unit areas, generally at a single location. This should not interfere with their primary mission. One monitor and an alternate are designated and trained to operate each radiac instrument authorized the unit or installation. Such specialized training is a unit responsibility; however, all army personnel should be familiar with radiac instrument capabilities and functions and with the significance of radiation hazards. Unit monitoring may be accomplished by *ground* monitors making measurements in their own areas or by *aerial* monitors when the unit is authorized aircraft.

The radiac instrument presently authorized for Army units to measure radiation dose rates is the *IM-108.* The meter normally can measure dose rates of from 1 r/hr to 500 r/hr and can be modified to indicate a range of approximately 100 mr/hr (milliroentgens per hour) to 14 r/hr. Separate "remoting" kits are issued to specific units so that measurements can be made outside of vehicles without unduly exposing personnel. The current infantry division table of organization and equipment (TOE 7D) authorizes 273 *IM-108's* per division (four per company size unit and one to two per artillery battery).

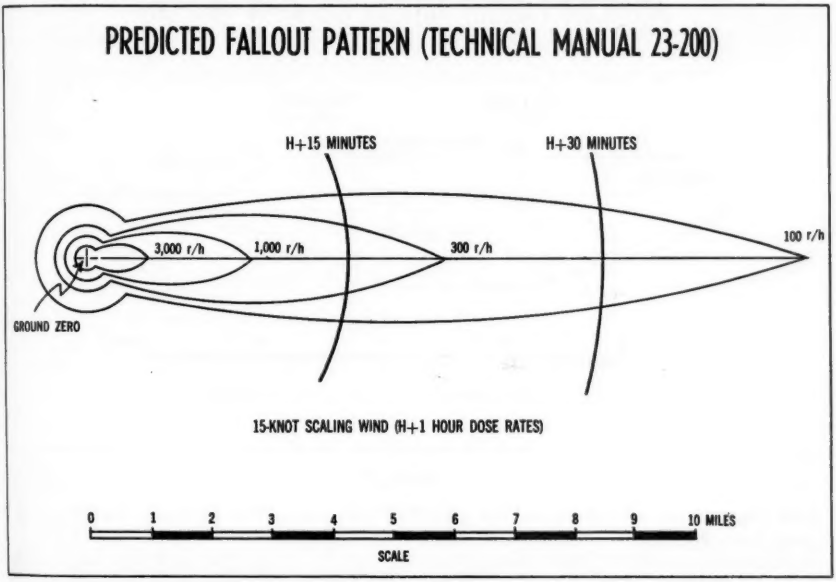


Figure 4.

To measure total doses already received, each platoon-size unit is issued two direct reading dosimeters, *IM-93*. These dosimeters will indicate an accumulated total dose of up to 600 roentgens. There are 780 *IM-93's* currently authorized per infantry division.

Radiological survey is the systematic, organized process, using monitoring techniques and instruments, to determine not only the presence of fallout and the measured dose rates but the location and extent of radiation as well. In other words, radiological survey has for its purpose the delineation of the significant fallout areas as they exist on the ground. With the information thus provided, total dose calculations can be made which provide the commander with a basis for sound decisions regarding planned operations within fallout areas.

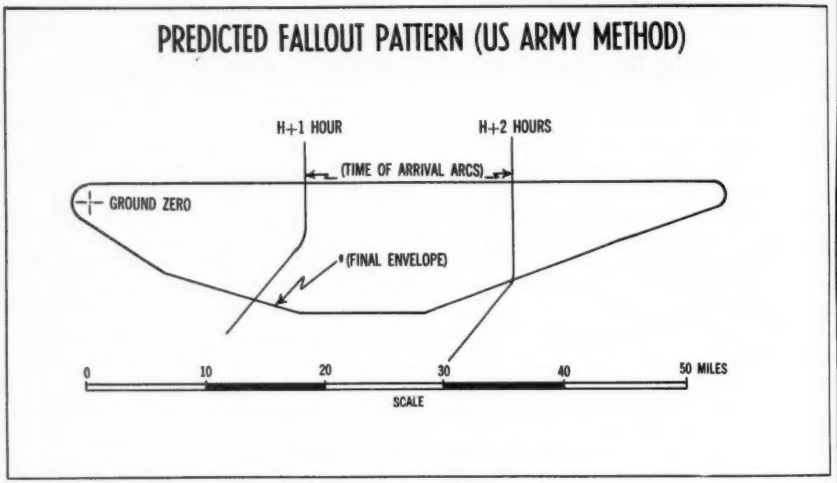


Figure 5.

Radiological Center

The radiological center (RADC) at division, corps, or army headquarters is the control group which plans and supervises radiological surveys as required. Control parties below division level may be designated to perform the same control functions as a RADC.

The radiological center is staffed by one officer and four enlisted personnel, provided by the organizational TOE, who are under the staff supervision of the chemical officer of a division, corps, or field army headquarters. Cellular type RADC teams may be provided as needed to augment the TOE team. The principal functions of a RADC are to:

Direct, supervise, and coordinate radiological surveys.

Receive, process, and evaluate monitoring and survey data.

Collate and disseminate radiological information in usable form.

Predict fallout from weapons employed by the enemy and, when directed, predict fallout from friendly weapons.

Radiological centers at division and corps usually operate within or near the Fire Support Coordination Center and at field army, in the G2-G3 operations section of the army operations center. Cellu-

lar teams may be established in field army rear areas to assist the rear area security control center (RASCC) located at the field army main command post or the alternate RASCC at the field army rear command post.

Types of Survey

Two types of radiological survey may be employed to obtain fallout information. They are ground survey and aerial survey.

An aerial survey party consists of a monitor and an aircraft pilot who determine the fallout conditions within certain areas, along certain routes or at certain points as directed by a control group, normally the RADC.

Information reported by monitors and survey personnel must include as a minimum the dose rate reading in r/hr, the time of the reading, the location of the reader, and the radiation protection afforded the radiac instrument when the reading was made.

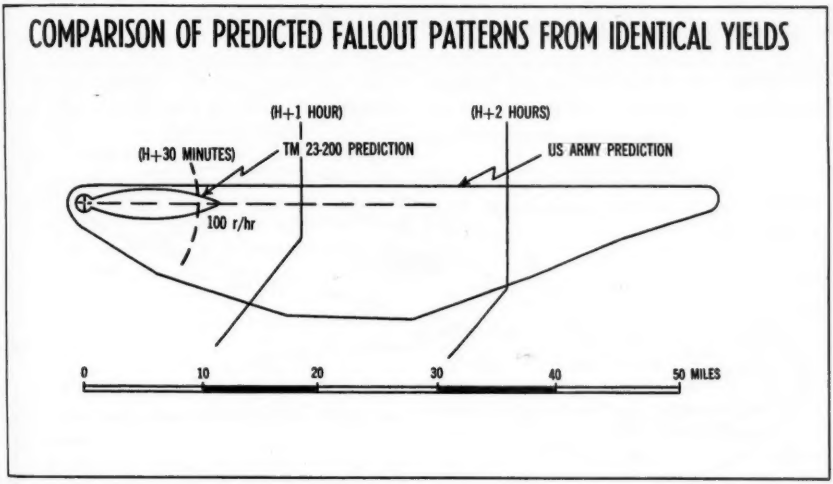


Figure 6.

Both types may be employed simultaneously in different portions of a fallout area, and the information from both is used to supplement unit monitoring data. It is probable that in a tactical situation, radiological surveys may be the exception rather than the rule because of the wide geographical distribution of unit monitors reporting the necessary dose rate data.

A ground survey party consists of one monitor and an assistant either mounted or on foot who are directed by a control group to determine the fallout situation along specified routes or within specified areas.

Since unit monitors measure radiation dose rates in their own troop areas, they report to their unit commander and these reports pass to the RADC through command channels. This permits commands at each echelon to correlate and utilize information pertinent to their own command. On the other hand, ground and aerial survey parties determine radiation conditions within much broader areas and normally transcend unit boundaries. Their reports are made to the RADC (or control party) by the most direct and fastest means.

Aerial Survey Advantage

The aerial survey method has the advantage of determining the fallout picture much more rapidly and completely than does the ground survey method. Additionally, survey of areas of high dose rates may be completed with less hazard to personnel since the aircraft carrying the monitor and pilot may fly at altitudes above the contaminated areas, pass over such areas rapidly, and thus reduce the radiation hazard (MR, May 1960, p 63). Dose rate measurements made in flight can be converted to ground measurements by application of an air-ground correlation factor (AGCF) computed for that particular flight. The AGCF is determined by comparing several ground readings (measured by landing the aircraft or causing it to hover) with air readings made at a prescribed altitude directly above the ground points and computing an average AGCF. Obviously, rotary-wing aircraft are preferable for aerial surveys because they allow the measurement of ground readings without actually landing.

Upon receipt of sufficient and appropriate information, the RADC will prepare a radiological contamination map showing the radiation situation in areas of interest. Monitor and survey ground readings are related to H + 1 hours after detonation and are plotted on an overlay to the scale of the map of operational interest. Dose rate contour lines are drawn connecting points of equal radiation dose rates. Such a contamination map may appear as shown in Figure 7.

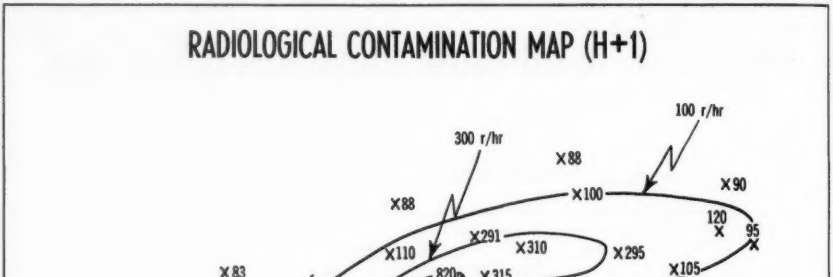


Figure 7.

This illustration presents only two dose rate contours; however, as many contours may be presented as information permits, and as are required. By application of decay (using Figure 1) the dose rate contour values may be changed so that the

contamination map can represent the contamination picture desired by the commander or staff for any *future* time.

Dose Rates

Monitoring and survey dose rate data are useful at any time after the detonation to inform the commander of the radiation situation. Even negative information (no radiation hazard) is useful. On the other hand, fallout dose rate information acquired before the fallout has reached peak intensity at the point of interest cannot be used to prepare meaningful contamination maps. To explain further, fallout dose rates increase as more and more radioactive particles fall and accumulate at a particular point. Meanwhile, the intensities of individual isotopes are decreasing because of decay. At some point, the rising dose rates caused by accumulation of additional particles are balanced by the *decay* in intensities of these particles. At this time the dose rate at a specific location is said to have reached its "peak." At any time later, regardless of the accumulation of additional radioactive particles, the dose rate will decline.

Only measurements obtained *after* peak dose rate has been reached (or past) can be related to H + 1 for application to a contamination map. Generally it can be expected that peak dose rates will be reached near the time when fallout has ceased in a particular area. There is a requirement, therefore, that at least two radiac meter readings be made in the same area or at the same point before usable information is available to the RADC to produce a contamination map. These readings may be from a combination of both monitoring and radiological survey reports.

The important thing to keep in mind is that surveys for the purpose of producing a contamination map of an entire area cannot be completed immediately after the detonation. Time must elapse for fallout to become virtually complete on the ground in the areas of interest. However, it must be understood that the fallout on the ground near ground zero will be complete quite early while successive areas "downwind" will receive fallout in increasing times after burst. This means, then, that surveys should be planned to start as near around ground zero as the hazard will permit, and "move downwind" as the fallout is completed in areas more distant from ground zero.

Only Reliable System

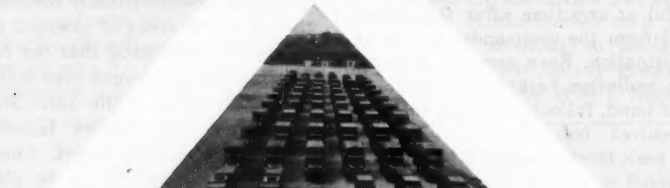
A commander must base his decisions involving operations in a fallout area on total doses of radiation likely to be received by his troops. Present fallout prediction systems do not furnish sufficient information to compute total doses of radiation. The only means by which to acquire sufficient and reliable information is by radiological survey and monitoring. Supplied with a contamination map, the end product of actual radiation measurements, the staff can estimate the total doses that will be received by personnel moving through fallout or occupying areas within it. Figures 1, 2, and 3 are the only tools required. Supplied with this "total dose" information, a commander can make sound decisions regarding operations in a contaminated area. He cannot reliably base such decisions on fallout predictions.

To survive in a nuclear war, radiological monitoring is, in fact, a battlefield "must."

Change 2, Training Circular 101-1, will be published in the near future. The change is entitled "Interim Fallout Prediction" and will present a modified fallout prediction method.—Editor.

What Are You Going To Do About It?

Lieutenant Colonel Luther E. Johnson, *Signal Corps*
Faculty, U. S. Army Command and General Staff College



YOU are looking at the vehicles of a comparatively small signal communications company. If the trends of the past 10 years continue, in 1970 the cost of the signal communication equipment for a 1958 Type Field Army could be one and one-half times the entire current Army budget.

Important and essential as they are, signal communications per se afford little deterrent to a would-be aggressor and they cannot be used to kill the enemy.

You undoubtedly agree with the latter statement. You probably consider the former absurd and there are few who would argue but what you are correct. However, the absurdity does not appear to stem so much from lack of accuracy of the statement as from the fact we have allowed such a condition to develop. As the commanders and staff officers who control the future of the Army, *what are you going to do about it?* If you have not given the problem some profound thought (and it is doubtful if many have or the problem probably would not exist), it is believed the remainder of this article will be of value in helping you to comprehend the problem and in deciding what you are going to do about it.

The basis for the estimate given in the first paragraph is the US Army Electronic Proving Ground report, * USAEPG Project 54-57-0015, 15 July 1958, with modifications through 31 August 1959. This project is an analysis of the quan-

* The Chief Signal Officer has given this report only qualified approval as the projection to 1970 is purely mathematical and cannot take into consideration many variables that could affect the results substantially.

The commanders and staff officers—controllers of the future of the Army—are the primary users of signal communications. What positive actions can be adopted now to ensure that they are utilized wisely?

tity of signal communication, measured in channel miles, authorized a Type Field Army at each of four periods over the past 15 years, and a projection of signal communication requirements to 1970. "Channel miles" is simply a term that is convenient in comparing the communications capability of the past. It is intended to convey a measurement of circuits in miles. For example, if there are 12 channels available over 100 miles of cable or radio relay, the channel miles would be 1,200. In the case of two radio sets, normally used as point-to-point sets, the channel miles per set are one-half the range of a set. Where several radio sets are operating in a net, the channel miles ascribed to each set is 70 percent of the range of the set irrespective of the number of sets that normally operate in the net. Figure 1 shows the capability in channel miles actually authorized a Type Field Army in 1948, 1954, and 1958; and a projection to 1970, based on the 1948-58 trend. What this means in terms of mileage is more forcefully portrayed in Figure 2. In 1948 the capability was equivalent to eight and one-half channels around the earth. In 1958 the capability had increased to the equivalent of four channels between the earth and the moon with enough left over to circle the world four and one-half times. If the trend continues, in 1970 the channel miles will be equivalent to 2,860 times around the earth or 331 times the distance to the moon.

Before examining in greater detail what channel miles mean in terms of more important factors—material or weight, money, and men—it is worthwhile to point out that the projection to 1970 has more as a basis than the mere fact that it is a mathematical projection of the 1948-58 trend. The USAEPG study advances the theory that military communications will vary in some proportion to three basic factors:

1. Man's total basic knowledge. (If there is no basic knowledge, there are no requirements for communications, but as basic knowledge increases, requirements for communications also increase).

2. The speed at which man can travel. (This is a very determining factor. Zero ground pressure vehicles swooshing across country and over obstacles at speeds much in excess of conventional ground vehicles will require more and faster communications both to control our own forces and to institute appropriate countermeasures against enemy action. Similarly, one lone enemy sweeping over a division at 1,500 miles per hour can generate a requirement for communications to reach corps in less than two minutes and to reach army in less than three minutes.)

3. Distances over which projectiles can be hurled. (This factor directly affects dispersion and hence the required length of communications circuits.)

All three of the above factors are in a period of very rapid increase, and there are other factors, perhaps not so basic, which also point toward a rapidly increasing demand for signal communication. Of course, the 1958 and 1970 field armies will differ greatly. But are there any indications that the requirement for signal communications will be less? There

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Lieutenant Colonel Luther E. Johnson has been a member of the faculty of the U. S. Army Command and General Staff College since January 1958. He received his B. S. and M. S. degrees from Texas A&M in 1935 and 1940, and in 1951 was graduated from the USA CGSC. He served with the Department of Training Literature, US Army Signal Corps; and as instructor and Assistant Professor of the Department of Electricity, United States Military Academy, during World War II. Other assignments include duty with the Radio Division, Supreme Commander Allied Powers; Special Projects Branch, Office of the Chief Signal Officer, Department of the Army; and Signal Officer, Headquarters Advance Section, Communications Zone, US Army Europe.

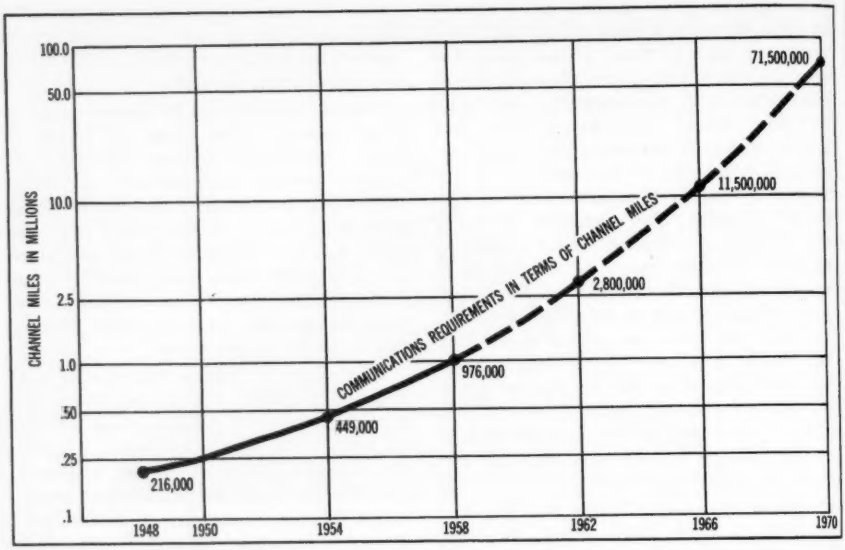


Figure 1. Signal communications capability for a Type Field Army

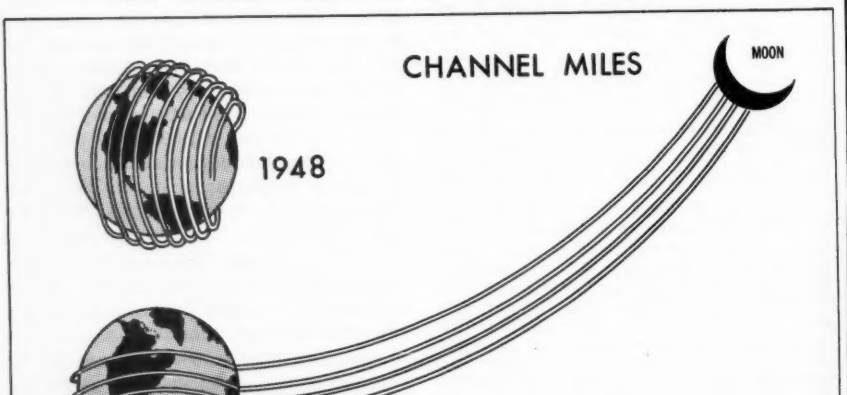


Figure 2. Comparison of channel mile equivalents, 1948-58

are many things that indicate the contrary. Examples are the increasing radius of lethality of weapons; increasing capability of surveillance; the projected widespread use of automatic data processing systems (ADPS's), requiring communications circuits both to assimilate and to disseminate the information; and the use of systems which substitute rapid service for reserves of stocks, such as the modern army supply system (MASS). Additionally, the practices that the younger generations of officers have become accustomed to in civilian life will have an effect. Some of us grew up when a telephone per block or per village was considered adequate, a radio was a curiosity, and television was unheard of, but we are the ones whose demands resulted in the communications requirements of the 1958 army. Then, is it absurd to assume that the younger generations will demand much more?

Figure 3 shows the total operating weight of the signal equipment. In 1948 it amounted to about 15 million pounds; 19 million in 1954; 32.4 million in 1958; and, if the trend continues, it will be 1.4 billion in 1970. To appreciate what these numbers mean to our mobility, 720 *C-124* aircraft would be required to transport the equipment authorized in 1958, and over 32,000 in 1970. Even 720 aircraft is somewhat difficult to visualize. If the equipment were to be airlifted and one *C-124* could get off every five minutes, it would take 60 hours to get the equipment alone in the air. Communication personnel to operate the equipment would require another 200 aircraft or an additional 17 hours to get off the ground, not to mention the fact that no transportation is included for the equipment once it is landed.

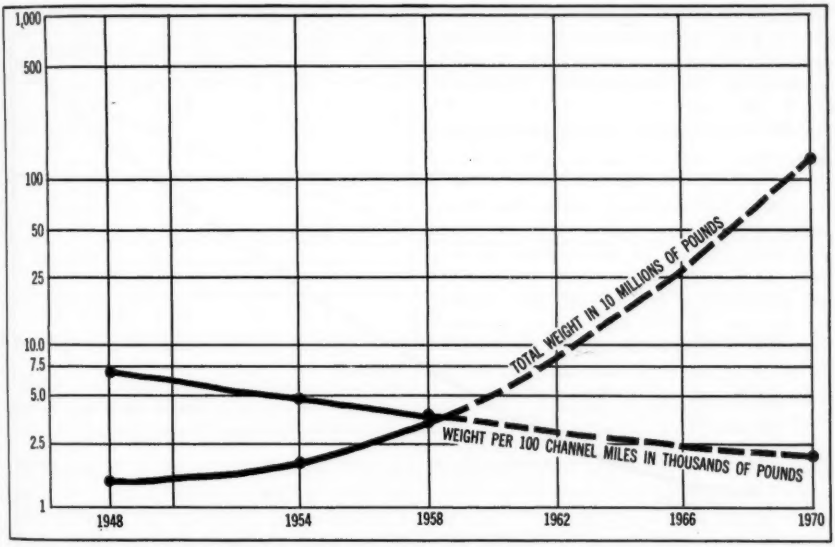


Figure 3. Operating weight of signal equipment authorized a Type Field Army

The cost of the signal equipment for a Type Field Army is shown in Figure 4. The 1958 cost of 176 million dollars perhaps is not impressive in this age of astronomical budgetary figures, and it pos-

sibly could be shown that this communications capability results in savings in other areas that more than offset the current cost, but the projected figure of 15 billion dollars speaks for itself.

During the decade 1948-58 the total communications personnel authorized increased 18 percent, and between 1954 and 1958 the authorization decreased by 10 percent. This latter trend is opposite to most other trends in communications. Increased technology and improved techniques undoubtedly justified this decrease partially, but it is believed across-the-board-cuts were an important factor. Whether the latter were warranted or whether the actual communications capability has been seriously impaired by these cuts remains to be determined by additional tests.

Based on the foregoing alone it could be concluded that the branch responsible for development of signal equipment (the Signal Corps) had not accomplished its mission as well as it should. However, as indicated by Figure 5, it can be seen that on the contrary remarkable progress has been made.

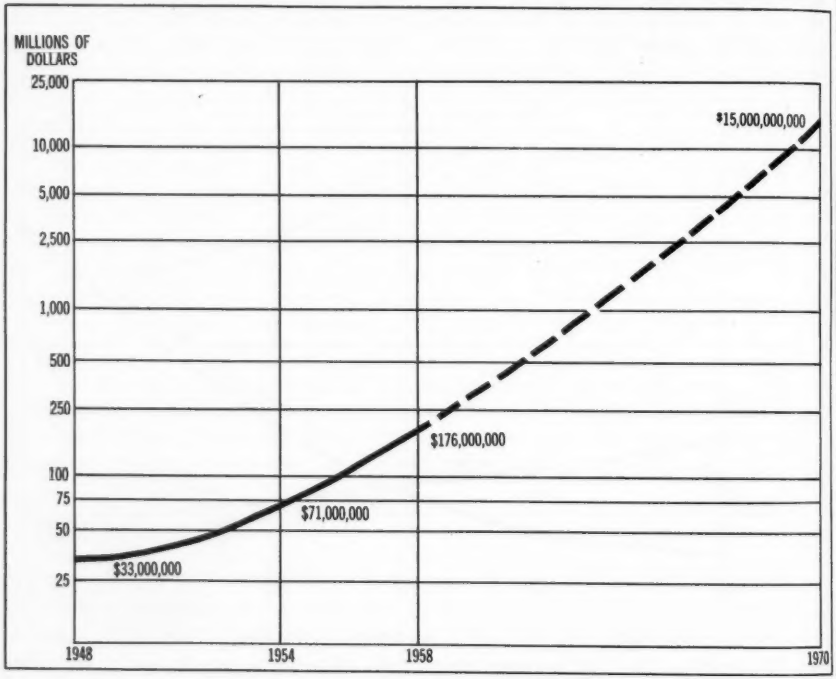


Figure 4. Cost of signal communications equipment for Type Field Army

The weight per 100 channel miles was reduced from 6,940 pounds in 1948 to 3,322 in 1958—a decrease of better than 52 percent. Improvement also has been made in other areas. Considering the constant value dollar, that is, making allowance for inflation, the cost of the equipment per 100 channel miles was re-

duced from $14,919 in 1948 to $14,458 in 1958. The communications personnel were reduced from fifteen and three-fourths men for each 100 channel miles in 1948 to slightly over four men for each 100 channel miles in 1958.

The 1958 type equipment can be installed much more rapidly. In 1948 about 98 percent of the communications, a total of around 15,000 channel miles, could

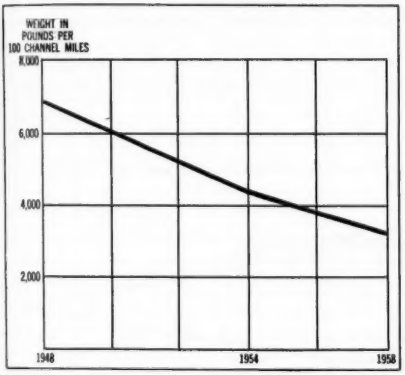


Figure 5. Weight of communications equipment per 100 channel miles for a Type Field Army

be installed in about four hours, whereas in 1958 about 170,000 channel miles could be installed in three and one-half hours.

In view of the situation outlined in the preceding discussion, the current state of technology, and the obvious need to eliminate radio direction finding and jamming by the enemy, the USAEPG study recommends as an objective the development of a system for 1970 which will provide a capability of transferring information equivalent to 100 times the 1958 capability with:

1. No increase in total weight.
2. A capability of eliminating direction finding and jamming by the enemy.
3. No increase in communications personnel.
4. Little or no increase in channel miles.

The Chief Signal Officer has definite plans for achieving the necessary technical objective if the resources are provided. But this will cost real money. In the words of the USAEPG study:

The Signal Corps is required, as it has never before been required, to seek and obtain permission, through increased funds and authority, and to act to push back the frontiers of many of the physical and social sciences at a much greater pace to meet future requirements. More funds for this purpose will be required in the next 10 years than the Signal Corps has received in all its past history.

However, research and development money is not enough. As in most important endeavors a great deal depends upon you, the commanders and staff officers—the primary users of signal communications and the only personnel who can ensure that they are used wisely. In suggesting areas where it is believed you should act, the intent certainly is not to discourage the use of signal communications where warranted. In many cases, undoubtedly, the use of signal communications not only provides the only acceptable solution, but results in savings in other areas that more than offset the cost. Furthermore, your thought and study of the problem is considered to be most important. Nevertheless, the following are areas where it is believed you should take positive action on each, particularly if your answer is not in the affirmative.

1. *Will you readily submit to and will you permit drastic changes in equipment and techniques?*

It now appears that any solution to the technological problem will require true conservation of the usable frequency spectrum. The electromagnetic spectrum, like everything else has its limitations. For example, in the very high frequency range of 30 to 300 megacycles, one of the most

commonly used tactical frequency ranges, it is a physical fact that there are only 270 megacycles—nothing can be done to make more, but much can be done to make better use of this and other bands of frequencies. A measure of how efficiently you are using this limited commodity is the number of cycle-minutes you use per word. When you turn on your FM radio transmitter you require 100,000 of these limited cycles, because an FM radio set requires a bandwidth of 100,000 cycles. If you then talk over it at the rate of 100 words per minute you are requiring 1,000 cycle-minutes per word of information you convey. That is, 100,000/100 = 1,000. This is a very inefficient use of the spectrum as the theoretical minimum is four cycle-minutes per word.

Efficiencies approaching the theoretical minimum are achieved with certain transceivers used with computers. But would you tolerate this system where you cannot talk back and forth instantaneously? If you will, there are many possibilities, such as compression of a second of speech into a few microseconds for transmission.

2. *Do you make full use of common user service (the area communication system)?*

Figure 6, also based on the US Army Electronic Proving Ground study, appears to indicate that you do not, and that the trend is toward greater use of sole user circuits and correspondingly less use of the common user system. The percent of FM radio stations, which are primarily sole user or private stations, increased from 31 percent in 1948 to 50 percent in 1958; while the number of telephones, radio relay subscriber stations, and AM radio stations, which are primarily common user stations, decreased correspondingly from 69 percent in 1948 to 50 percent in 1958.

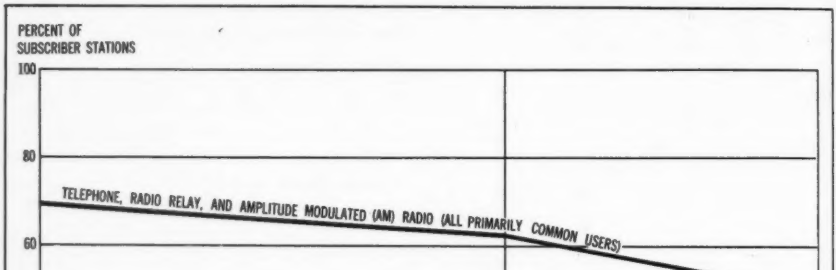


Figure 6. Distribution of communications capability in percent by type of transmission

The current common user systems require fewer cycle-minutes per word than do your FM radio sets. But more important, if you demand and have a point-to-

point FM radio system, you are denying the use of your 100,000 cycles for 24 hours a day when you may actually use it for a very small part of that time. Your effective cycle-minutes per word under these circumstances are much greater than 1,000, or in other words your efficiency is very low.

3. *Do you really decentralize or do you only talk about it?*

Centralization and command control require communications, and will require increasingly more as dispersion and mobility are increased. Certain control centers can serve a useful purpose, but in evaluating their desirability the effect they will have on communication requirements must be fully considered.

4. *Do you make full use of standing operating procedures (SOP's)?*

The value of SOP's in reducing the requirements for communications seems obvious. But, of course, they help little in this respect unless personnel are properly trained in their use. If they simply trigger a deluge of high precedence inquiries seeking clarification when the incident occurs, they are of questionable value.

5. *Do you train to operate in emergencies with little or no electrical communications?*

Enemy jamming may render much of your electrical communications useless. Further, if we can fight without nuclear weapons, should not we be able to fight without electrical communications in an emergency?

6. *Are you willing to move the signal officer up to the general staff level?*

Direct access to the commander may be required. This practice is normally followed in joint staff organizations. It also is followed in several foreign armies, and none of these armies demand communications comparable to those demanded by US armies.

7. *Are your thoughts about automatic data processing properly oriented?*

Automatic data processing systems may some day be as commonplace on the battlefield as the telephone is today. But ADPS is in its infancy insofar as tactical use is concerned. In your planning for ADPS do you realize that its output can be no better than the input, and that output in excess of your real requirements will add to your load and probably deprive you of other things you need?

8. *Do you limit the use of electrical communications to matters which require immediate action or to essential matters that cannot be handled satisfactorily by other means?*

Mail or messenger service is the normal method for routine matters.

9. *Are your communications requirements realistic or do you ask for enough to cover any eventuality?*

10. *Do you follow and require such administrative practices as the following?*

a. Maintain a continuing program to educate personnel in proper use of communications.

b. Brevity in messages consistent with clarity.

c. Assign the lowest precedence and classification required by the urgency and content of messages.

d. Limit addressees to those required and use a nonelectrical means to the maximum for information addressees.

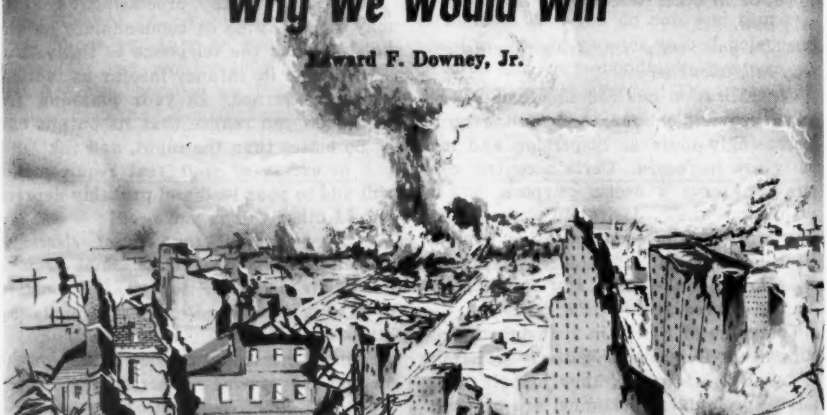
e. Keep telephone calls brief and concise and organize your material in advance when time permits.

What Are You Going to Do About It?

NUCLEAR WAR

Why We Would Win

Edward F. Downey, Jr.



THE man on the street in America is reconciled to a nuclear defense of our way of life, yet he apparently has accepted the premise that a nuclear war will wipe out civilization.

Having reached this dismal conclusion, many of we Americans have characteristically closed our minds to further discussion of the matter. "Either we don't fight; we fight little wars; or we fight one big one and that will be the end of the world." This is our attitude. Shifting ourselves mentally out of gear, we have gone about our everyday affairs with an almost nihilistic unconcern.

The Communists probably are not exactly at ease when they consider the outlook either. Characteristically, however, they have *not* put the matter out of their minds. Much of the present Soviet thinking has concerned itself with what would happen if a nuclear war were fought.

The main conditioning element in Communist thinking is that the Soviet Union suffered unmercifully at the hands of Hitler's invaders during World War II. Because they survived this paralyzing assault, the Soviets are convinced they could "take" another blow of similar magnitude. Couple with this their contempt of us as a nation and a people (in the memory of living man, we have never suffered a disastrous invasion), and we find the Soviets musing the possible successful outcome of

Essential to ultimate victory in a thermonuclear war is the capacity of the standard of living to absorb a nuclear attack. Who is better prepared to rise above mere survival—the United States or the Soviets?

a nuclear war. Lenin had a penchant for building on ruins. Why not Khrushchev who so closely follows Lenin's example?

The Soviets remember that the German attack cost the Soviet Union about a third of her land area, about a quarter of her population, and approximately half of her industry. The events that followed the invasion, along with the all but impossible conditions of mere existence, toughened the Soviets. They did survive. They did fight. And, finally, they did win. The Communists have been very impressed by this sequence of events. Because these things did happen, and because the Russian Communist has a well-developed taste for dogmatic thinking, a grave threat to international peace exists. The Soviets, erroneously, believe they can win a nuclear war.

No Victor

Americans believe that nobody can win a nuclear war. That is why we have placed the entire matter out of our minds. To us the senselessness of wiping out civilization is so obvious that we have not forced ourselves to investigate the possible outcomes of a nuclear war. The only concession we have granted this exclusive attitude is that we might be *forced* to fight one.

By admitting even the remotest likelihood of such a mad venture, we feel that we are violating reason. Our Nation is famous not for destructiveness, but for its ability to organize, build, and materialize more than some men dared to dream. We are unwilling to bend the constructive energy of Western civilization into a piecemeal consideration of a plan for picking apart civilization. We have, therefore, refused to consider an analysis to determine the possibilities of winning a nuclear war.

In following such a course of action, we have made another cold war mistake. We have given the Communists an opportunity to win another round by default. While we bury our heads in the sand of unreality, the Communists—using theirs to better advantage—are carefully considering the possibilities of thermonuclear warfare. Failing to do the same thing, we have given the Communists a psychological headstart.

They may have incorrectly evaluated the situation, or almost as bad, they may have correctly evaluated the situation and will use their knowledge to our disadvantage in the propaganda game. By refusing to play, we have left our enemies holding all the cards. Forty years' experience with Communists should have convinced us that they are good gamblers. They play well even when they lack some of the cards. Unless we take part in the game, and play our cards properly, we can never convince the Communists that the only course of action left to them is to maintain thermonuclear peace.

Unpleasant Prospect

Incredible as it seems, we must accept the fact that nuclear war can happen. It is definitely not a pleasant prospect, but it just as certainly *is* a prospect. No one in our culture can understand how anyone could start such a war. Our failure to comprehend such things, however, will not exorcise the assassin when he strikes. The bomb may go off and civilization may suffer a crushing blow.

Central to the entire issue, then, is this objective: **If the price of a war for survival is vast destruction, the very least we can do is win.**

When we play the game of nuclear

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blindman's bluff, we must be prepared for unprecedented destruction. If we dare not face this prospect, we are, with our present outlook, pursuing a most foolish course. We must measure the effects accurately if these nuclear arsenals are unleashed, or we will never realize the full confidence which we clearly need.

The Soviets are betting on their tested toughness to carry them through a nuclear war. They are relying upon our dependence on a higher standard of living to undermine us in an all-out struggle. They figure their lower standard of living will make it easier for them to adopt the existence level. Our higher standard of living has, they believe, so softened us that we could never adjust to a crushing change. Thus a postnuclear protracted conflict could be waged against a disabled and defeated America. On the surface this sounds so good that one might conclude that the premises are correct. If the Communists have drawn this conclusion, they have improperly evaluated the facts.

Bombing of Hamburg

In Chapter 12 of *The Affluent Society*, John Kenneth Gailbraith uncovers an interesting relationship between a nation's military security and its gross national product. To develop some of his ideas, Mr. Gailbraith uses the example of the 1943 British bombing of the city of Hamburg, Germany. He considers the effects of three successive days of massive bombing attacks which did damage comparable to that of the atomic attack on Hiroshima. The attacks rolled up a frightening total of death and destruction. The example cited has far-reaching significance in estimating the capacity to absorb a nuclear assault.

Production in Hamburg dropped 20 to 25 percent for the first few weeks. Afterward, despite the effects of losing 60,000 to 100,000 people, and the intense efforts to repair damage, production returned to normal. Gailbraith attributes this phenomenal recovery to the fact that the raids reduced the German standard of living far below that which the Germans considered necessary. By wiping out restaurants, banks, and stores, the bombers released a hoard of survivors to the only available employment—war industry. The worker, despite a shocking reduction in his standard of living, still maintained his working efficiency. Gailbraith concludes that by decisively reducing the consumption of nonessentials, the bombings made manpower so available to German war industry that it was possible the raids increased German war production.

No doubt the people of Hamburg thought the world had come to an end. For thousands of them, it had. But life went on the next day for the survivors. The same would be true in countries subjected to nuclear assault.

Standard of Living

In these nations the standards of living would be rudely reduced. Essential to ultimate victory, however, would be the capacity to absorb the nuclear attack. Contrary to most current thinking, the United States has a greater capacity to absorb a thermonuclear attack because she has a higher standard of living to lose. Because they presently live closer to the existence level, the Soviets can afford to lose less. Their capacity to absorb a saturation attempt with nuclear weapons is less than ours. For example, assume that 60 percent of our productive energy goes to produce nonessentials for survival. We can discount, then, 60 percent of the destructiveness of a nuclear attack. If in the Soviet Union, let us say, only 35 percent of their energy goes to produce nonessentials, they can discount only 35 percent of the damage we do to them. In this respect, an attack of similar magnitude can do much more damage to the Soviet Union than it can to us.

There is little point in shilly-shallying over whether we or the Soviets are better

prepared to live at the subsistence level. If thermonuclear war reduces us to that level, we have no choice but to exist at that level. The question then becomes, "Who is better prepared to rise above mere survival?"

You may be thinking that the productive capacity of Red China should enter into this discussion of the recuperative powers of America versus those of the Soviet Union. However, it is doubtful that the Chinese Communists will ever get the opportunity to sit out a war of survival. They are an integral part of the international communistic conspiracy, and in a war of survival would be as much our enemy as the Soviets themselves.

Being a country where thousands starve when a food distribution problem presents itself, and where millions go to bed with gnawing hunger, we must face the fact that they are barely at the existence level now. A nuclear assault on their few frontiers of progress would cripple them. Whether Top Secret plans for such retaliation exist at this moment is certainly a question of great and disturbing concern for the Communists. One thing, however, is certain—the Chinese are not the Communist key to victory in an all-out nuclear war.

A more detailed analysis of our ability to absorb a nuclear saturation attempt would concern itself with dispersal of industries, communications nets in existence, finished products available for immediate use, possibilities of confiscating goods for cannibalization as parts, reconversions of surviving industries, and total mobilization of the population. Naturally, we would have to compare the possibilities of the Communists under like conditions. These are the details which would have to be recognized. In the big picture we generally have more capacity than do Communist powers. In the long run, this could assure victory.

Probably even more important than physical destruction, however, would be the resulting political situation. A nuclear war would create a social breakdown. The hydrogen bomb would strike a discordant note in the harmony of civilization, and the centralizing forces of society would go up in a puff of smoke. Government by anything but naked force would all but disappear. In many areas government by force would be unavailable. The people in every area would have to reorganize their own local, regional, and national governments. The type and direction of these governments—and, therefore, their effectiveness—would be determined largely by the people themselves. Their efforts would be affected by the attitudes they had concerning the previously existing governments.

Local democracy in time of crisis is part of our national heritage. Americans would have little difficulty in reestablishing governments along normal, but slimmed-down lines. The training and preference of our people for democracy would assure us the widespread leadership needed in every locale. The confidence of our people in these governments would be born from tradition, tested in experience, and forged by disaster.

Would the Communist countries be so lucky? They who scoff at our inefficient governmental decentralization may well be the victims of their own nuclear war. A dictatorship is dependent upon centralization of government. Once that centralization is destroyed, the dissatisfied and persecuted minorities can revolt. It is questionable whether Communists who resort to purges and repression in times of peace can weather a storm that destroys the central power of their party. With the collapse of the false fronts of terror and position, each leader will have to stand on his own two feet. His personal capacity to survive may well depend on the respect and confidence of the populace. The recent evidence of the inability of the Communist Party to inculcate everyone with enthusiasm for party objectives leaves considerable room for speculating the fate

of Communists who must really rely upon the proletariat for their support.

Decision From the People

In America the decision to fight a nuclear war would come from the people. Shocking as the results would be, we could not hold ourselves at fault for defending ourselves. In Russia, however, the dictator-party does the political thinking. In making fast moves this is a tremendous advantage over our more ponderous procedures. At the same time, however, a dictator, by being all-knowing, has one terrible disadvantage—he cannot make mistakes. When he does, he undermines the confidence of the people in his entire government. A Soviet leader who launches a nuclear war and who suffers the retaliation of an indignant people will find himself and his helpers blamed for the misery visited on his countrymen. At this point slogans will not suffice.

It is likely that American Government will recover from the blow while the dictatorial governments of the Communist orbit will fall of their own dead weight. Instead of wiping out the capitalistic world in one calculated holocaust, it is more likely that communism will commit suicide. It will expose itself to massive destruction and internal civil strife while it unifies its enemies. It will give us determination and time to carry the war to its homelands, to destroy dissension-ridden Communist armies, and to occupy Communist countries.

Certainly, this is a far cry from the evaluation of nuclear warfare that the Communists may even now be entertaining. It is believed, nevertheless, to be a much more accurate picture of the true possibilities. Culturally, all mankind would lose a thermonuclear war; but politically and militarily, a nuclear exchange would leave the Western democracies the victors, and communism the victim.

Keeping in mind the Soviet concept of general nuclear war . . . I believe that we can discourage a nuclear attack on the United States if we can convince the Communists of three things:

***First,* that we have the means, not only to recover from the most successful surprise attack that they could launch against us, but to prevent them, subsequently, from attaining the objective of their attack. This objective was announced by Lenin more than four decades ago—world domination. It has been reaffirmed by every Soviet leader since Lenin.**

***Secondly,* that we have the will to use those means, if need be; and**

***Thirdly,* that we do not intend launching a thermonuclear attack on the Communists without provocation.**

General Lyman L. Lemnitzer

The Challenge of the Soviet Army

Lieutenant Colonel Irving Heymont, *Infantry*
Operations Division, Headquarters, United States Army Europe

IN SPITE of Premier Khrushchev's announced intention to reduce the Soviet armed forces, the Soviet Army continues to present a powerful challenge to the military systems of the Free World. The Soviet Army is now designed for fast, wide-ranging combat on either a nuclear or nonnuclear battlefield. Even after any conceivable reduction in numbers this challenge cannot be dismissed.

During Stalin's lifetime, Soviet Army tactics and organizations were based mainly on his interpretation of the lessons of World War II. Tactical nuclear weapons were considered only as additional firepower. Stalin's death marked the discarding of the shackles of World War II experience. Concepts of warfare were reexamined to determine the true effects of the availability of tactical nuclear weapons. The resulting changes in Soviet Army doctrine are great, even though the Soviets believe that some World War II lessons still are valid.

The Soviets conclude that nuclear weapons now permit surprise to affect the outcome of the war decisively, particularly in the opening stages. The destructiveness of nuclear fires, and the range and speed of their delivery, make it possible to win the war by a surprise attack. Consequently, the Soviets further conclude that a nation must have a deterrent force in being that is capable of striking a preemptive blow or carrying on operations even if the enemy strikes the first blow.

The Soviets carefully differentiate between a pre-emptive attack and a preventive war. A pre-emptive attack, one made to forestall an enemy intention to start hostilities, is similar to the wild West sheriff shooting the outlaw as soon as the outlaw reaches toward his holster. A preventive war is comparable to shooting the outlaw on sight. How the Soviets expect to be able to determine that the enemy truly intends to start hostilities is beyond the scope of this article. Needless to say, they claim that the Marxist-Leninist theories provide them with such a capability.

The Soviet conclusions on the influence of nuclear weapons on warfare apparently have resulted in recent reorganizations of their army and changes in tactical doctrine. The Soviets now believe they must have an army in being that is organized, equipped, and trained to overrun Western Europe in days—not weeks. Such a capability is necessary to eliminate the threat posed by mobile and easily camouflaged ground nuclear delivery means that can reach targets in European Soviet Bloc areas.

Longer range ground nuclear delivery means usually require semifixed installations that can be attacked by missiles or bombers from within the Soviet Union. Possession of the industrial resources of Western Europe also would help compensate for damage inflicted upon Soviet industry. The Soviets also undoubtedly consider that an army capable of rapidly

To meet the battlefield challenge of the Soviets, Western armies must possess a greater degree of mobility, be strong in antitank weapons, and have better target acquisition gear and effective communications

overrunning Europe is a strong deterrent to a surprise attack by the Western Powers.

Mobile Combined-Arms Team

The Communist political doctrine of preparation for all contingencies is reflected in the new Soviet military organization and tactics. Reliance is not placed on any single weapon, service, or item of equipment. The Soviets emphasize that battlefield victory is achieved by the offensive of combined arms. Tactical nuclear weapons are not considered to be the absolute weapon once field forces are engaged. Nuclear weapons are used in conjunction with other firepower and maneuver of ground forces to achieve decisive results on the battlefield. Soviet military thinkers firmly believe that only fools consider ground forces to have outlived their usefulness.

According to the Soviets, the tremendous destructiveness of nuclear weapons makes maneuver the key to battlefield success. In turn, this makes mobility vitally important. Mobility permits rapid exploitation of nuclear fires and dispersion for passive protection. This thinking is reflected in Soviet advances in high-speed prime movers and in track-laying carriers for personnel and weapons, including tactical nuclear delivery means.

In view of the importance of mobility, the Soviets apparently have concluded that armor is now the major fighting arm. Armor best combines mobility and nuclear protection. Nuclear fires and tanks are complementary; one provides the main firepower element and the other the maneuver element. New Soviet equipment for the combat arms—particularly infantry, artillery, and engineers—permits them to keep pace with a tank offensive. Tanks, however, are handicapped at night and in crossing minefields and water barriers. To overcome these limitations, the Soviets have stressed development of assault bridging, amphibious tanks, and night tank driving and firing devices.

From the concept of rapid maneuver and high mobility it follows that units must be capable of forming combined-arms teams that can maneuver rapidly, react quickly, and achieve surprise. These concepts are believed to have led to a recent extensive reorganization of the Soviet Army. The major features of this reorganization are apparently:

- Creation of a motorized rifle division with several hundred organic tanks and all combat infantry elements mounted in organic armored carriers.
- Elimination of the mechanized and rifle divisions.
- Elimination of the rifle corps echelon.

The full extent of this reorganization is not known. There probably is a considerable gap between Soviet goals and actual execution. It is significant, however, that statements of Secretary of the Army Brucker indicate that all the Soviet infantry type divisions in Germany are considered to have been reorganized as motorized rifle divisions.

Speed and Firepower Sought

Several features of the new Soviet organizations stand out. The proportion of tanks to infantry in rifle divisions has been greatly increased without any apparent reduction in artillery support. Both field and antiaircraft artillery have been

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greatly improved in caliber, range, and performance. While nuclear firepower may be used for reducing strong positions, adequate conventional artillery is retained. This provides a strong capability for attack of very close targets and for adequate fire support in nonnuclear operations. All tactical units are completely motorized with organic high-speed vehicles that afford some protection against nuclear effects, and have improved capabilities for crossing barriers, particularly rivers.

The elimination of the rifle corps headquarters reduces reaction time, particularly in the use of fires controlled by the army headquarters. With the combined-arms and tank armies controlling a relatively small number of divisions, army supply complexes can be expected to be smaller and more dispersed.

Soviet nuclear tactics, in the eyes of the Soviets, embody well-tried principles and techniques that are equally applicable to nonnuclear warfare. Good intelligence, thorough and rapid preparation of operations, surprise and deception, continuous operations, mobility, firepower, shock action, and morale of the individual soldier are now of increased importance. These principles and techniques have been stressed in Soviet field training during the past few years.

Offensive Tactics

A Soviet offensive, judging from past practices and the capabilities of current organizations and equipment, would be based on detailed intelligence and would attempt to achieve surprise. The offensive would be launched by heavy attacks on enemy nuclear delivery means, airfields, early warning and fire control radars, and headquarters and communications facilities. Usually motorized, rifle divisions would advance rapidly on broad fronts to determine the character and extent of enemy defenses. If possible, tank divisions would be used to launch the offensive.

These divisions, motorized rifle or tank, would search for gaps and open flanks where the main Soviet forces, heavy in tank divisions, could drive deep into the enemy rear areas. These drives would develop into wide envelopment moves to split and isolate enemy forces. Movement would be rapid, with maximum use of the improved cross-country capabilities of the new Soviet equipment. Enemy strong points would be bypassed, where possible, in order to maintain speed and momentum.

River obstacles would be crossed on broad fronts without pause for buildup. The amphibious characteristics of much of the new Soviet equipment make this possible. Airborne troops would be used to seize objectives in advance of main forces. Enemy nuclear fires on leading elements would be prevented, in part, by maintaining close contact (hugging tactics). The effectiveness of enemy target acquisition would be reduced by speed of movement, dispersion and concealment, and movement during conditions of reduced visibility.

Nuclear Weapons

In view of the traditional Soviet reliance on mass, nuclear weapons can be expected to be used in mass in support of ground operations. *According to their publications,* the Soviets do not intend to use nuclear weapons except in retaliation. However, it would be reasonable to expect them to use nuclear weapons against any targets which cannot be handled effectively by nonnuclear means. This explains the Soviet retention of large amounts of conventional artillery. The control of nuclear weapons probably is retained at the front (army group) and army headquarters. The characteristics of Soviet nuclear delivery weapons, current Soviet emphasis on use of initiative by subordinate commanders and on speed of operations, indicate that control of nuclear weapons by division commanders would not be a surprising development.

Soviet Front in the Offense

Let us examine the application of these concepts in the possible operations of one Soviet "front" in a nuclear offensive. Of course, this front would be in coordination with other fronts. The front probably would be organized for the attack in two echelons, with about two combined-arms armies in the first echelon and one tank army in the second. A two-echelon formation with the second echelon heavy in tank units is a typical Soviet attack formation.

Soviet *Yak-24 (Horse)* helicopter

The three successive major phases of any Soviet offensive usually are the breakthrough and encirclement, exploitation, and pursuit.

At the start of the offensive the first echelon, supported by nuclear weapons, breaks through. At the same time, the front's second echelon tank army starts moving forward from behind the first echelon. The goal is to break through and roll back the forward enemy defenses and destroy the enemy corps reserves in the first day or two.

Following the destruction of the enemy corps reserves, the breakthrough operations continue with an advance of about 80 additional miles during the next three days. By this time the front's second echelon, the tank army, is fully committed and the first echelon combined-arms armies are completing encirclements, blocking counterattacks, and providing flank protection. The stage is now set for the exploitation.

During the exploitation the Soviets would expect to advance about an *additional* 80 miles in one or two days. During this phase the enemy's field army and theater reserves are defeated and scattered. Advancing columns break loose from minor engagements and continue to press forward. Only minor resistance is expected now and organized positions are bypassed or are quickly encircled and destroyed.

The exploitation rapidly merges into a pursuit. The speed of the offensive accelerates and the Soviets would expect to advance for two or three days covering 80 to 100 miles each day. At this stage, en-

emy forces are cut off from their lines of communication and are resisting as isolated elements. The Soviets would probably now direct large armored formations, supported by nuclear weapons, in a fully coordinated effort toward the final objective. It is not unreasonable to expect that the Soviets consider that their offensive could carry them over 400 miles in six to nine days.

Soviet troops ride *T54* medium tanks in attack

Mobile Defense

Turning from the offense, we find that in the past Soviet defense tactics have been of the static type. The type most commonly used since World War II has been defense on a wide front to protect

key terrain. Such a defense is based on company and battalion-size strong points located in a prepared defense zone. The strong point garrisons defend in place and leave the counterattack to division and army reserves.

With their new equipment and organization giving greater mobility and flexibility in forming self-contained combined-arms teams, the Soviets will now probably rely on a mobile type of defense. In this type of defense, prepared defense zones would not be established. More likely, numerous battalion positions in depth would be prepared for occupation when an enemy attack becomes evident. Motorized rifle battalions would be used for this purpose. Once in place, these battalions would disrupt the enemy attack by forcing him to deploy, and move into areas where he can readily be taken under fire or counterattacked. Before becoming too closely engaged, these forward battalions would withdraw to previously selected positions.

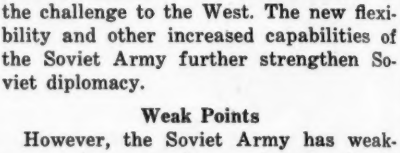
As the enemy penetrates deeper, he would be subjected to successive counterattacks by division and combined-arms army reserves. These counterattacks would be designed to so reduce the combat effectiveness of the enemy that he must halt for reorganization. When this has been done, the Soviets probably would launch a counteroffensive using available reserves These reserves, from assembly areas well to the rear, would be committed rapidly at the critical time. The completely organic mobility of Soviet units makes this possible.

In the conduct of this type of defense, the combined-arms army probably could defend an area about 60 miles wide and about 50 miles deep. A motorized infantry division could probably defend an area about 20 miles wide and about 10 or more miles deep. Tank divisions and tank armies would be used mostly for counterattacks and counteroffensives.

Present Soviet tactics and organization are probably a marriage of World War II mobile operations and the tremendous firepower of tactical nuclear weapons. Coupled with the new weapons and equipment now in the hands of their troops, the Soviet Army is prepared for nuclear warfare or highly mobile warfare under non-nuclear conditions. This is the nature of the challenge to the West. The new flexibility and other increased capabilities of the Soviet Army further strengthen Soviet diplomacy.

Weak Points

However, the Soviet Army has weaknesses. Soviet tactics are based on fluid warfare. Such warfare succeeds only if



Soviet prime mover and personnel carrier

subordinate commanders exercise intelligent initiative. Soviet training stresses initiative. However, for such measures to be really effective, the culture from which the army springs must also foster initiative. The monolithic nature of Soviet society certainly does not encourage initiative. The Soviet Army past tradition of rigid centralized control is not quickly overthrown. There may be a great difference between the goals of the Soviet High Command and reality in the field.

Another vulnerability of Soviet forces is their dependence on an uninterrupted fuel supply for their masses of armored vehicles. Effective attack of their lines of communication, including guerrilla at-

tacks, could slow the Soviet Army and bring it to a halt. The discontent in East Germany, Poland, and Hungary shows guerrilla potential which may become a real threat to Soviet lines of communication.

Conclusion

Soviet mobile organizations and tactics create difficult problems for Western armies. To defeat a highly mobile force requires a greater degree of mobility. This can be achieved by having a greater degree of mobility *in being* or a *real* capability to reduce the mobility of the opposing force.

Large masses of Soviet tanks and armored carriers require an opposing force to be strong in antitank weapons which can be shifted rapidly to meet attacks from any direction. Such antitank weapons should not be limited to line of sight fires and should have more than excellent probability of destroying one tank at a time. There is an urgent requirement for new antitank weapons that destroy more than one armored vehicle at a time. A possible answer is a very low-yield nuclear weapon fired from a tank or from an aerial platform.

Highly mobile tactics can be defeated by being strong everywhere or by being able to detect and destroy the enemy before he can come close enough to cause serious damage. Being strong everywhere is impossible. The threat of nuclear fires alone prevents static concentrations of troops and weapons. Weapons for destroying the enemy at great ranges are in being. However, reliable equipment to detect an enemy at the same distances at which he can be destroyed is urgently required to counter Soviet tactics. Such equipment is equally vital in the offense in order to detect Soviet forces moving rapidly to counterattack.

In addition to target acquisition gear, effective communications must also be available to report information. Such communications are also required for supporting and coordinating units that can be expected to be isolated or bypassed by Soviet forces exploiting gaps and vulnerable flanks.

These are only some of the problems that come to mind from a visualization of probable Soviet tactics and organization. These, and similar problems, must be solved as a matter of urgency in order to assure a real capability to meet the battlefield challenge of the Soviet Army.

READER VIEWS WANTED

The MILITARY REVIEW welcomes your comments on any material published. We do not publish letters to the editor, but we will make good use of your ideas and suggestions. Do you like or dislike a particular article? Do you agree or disagree with an author's point of view? An opposite viewpoint or a new line of thought will assist us and may lead to publication of your ideas. If you are an authority on a certain subject, why not write an article for our consideration? If you have only an idea, query us; perhaps we can assist you in developing an acceptable article.

BETTER SAID, BETTER DONE

Major George M. Bush, *Corps of Engineers*
US Army Engineer District, Okinawa

EVERY time you speak you build an impression of yourself. Associates are quick to judge you by what you say, and by how you say it. Their judgment is not developed solely on formal speech occasions. It is based on casual conversation, both social and professional. It comes in briefings, committee discussions, and on many other occasions.

As a commander, the spoken word will be the principal means by which you express your leadership. As a staff officer, you may sacrifice a brilliant piece of work by an inability to sell it orally. If you do not care about putting your ideas across, stop here. If you want to influence people, learn how to speak more effectively.

In recognition of the importance of effective speech, the United States Continental Army Command issued a directive on 22 December 1958, which is quoted in part as follows:

The inability of an officer to express himself clearly, detracts from his over-all value to the military service. Accordingly every effort must be made to insure that . . . officers develop the ability to impart knowledge, issue clear and understandable orders and instructions, and properly and clearly inform their superiors. . . . The student's ability to express himself orally will be evaluated in all officer career courses up to and including the US Army War College.

Beginning with the 1957-58 Regular and Associate Classes, the United States Army Command and General Staff College initiated a program to improve the ability of its graduates in oral communication. The emphasis given to both oral and written communication during the major curriculum revision of that year is based on the following mission analysis which appears in the U. S. Army Command and General Staff College Guidelines for Resident Instruction:

USA CGSC must encourage and assist the student to improve his ability to communicate, both orally and in writing. This capability is an essential qualification of an effective commander and general staff officer and is currently receiving Army-wide emphasis. . . . Even the best thoughts, ideas, decisions, and recommendations of commanders and staff officers are valueless unless they can be quickly, clearly, and concisely imparted to others. It must be assumed that the students, all of whom are selected on the basis of professional proficiency and have successfully served as officers for eight to 15 years, will already have developed some capability for oral and written expression. Execution of this mission will be aimed at refining an existing capability and will focus on critiqued *application.*

The College speech program, started in 1957-58, has been refined, expanded, and improved in each subsequent year. At present, 16 curriculum hours in the Regular

The spoken word is a means by which leadership is expressed. The ability to speak effectively is an important and an essential qualification of an officer. It greatly increases his value to the service

Course, and four curriculum hours in the Associate Course, are devoted to the formal part of the speech program.

But, you may say, by the time an officer has reached the USA CGSC level, either he is a good speaker or he never will be. Why try to refine a speaking talent at this late date, and with such a small number of curriculum hours?

Have you ever noticed that the best golfers always seem to do the most practicing? They do not restrict their practice to the first eight years of play. They take a sack full of golf balls out to the practice tee and spend many hours every year reviewing the fundamentals of golf—refining an already developed talent. They spend just as much time on the practice putting green trying to maintain or recapture their putting "touch."

This also is true of the speaker. A periodic review of the fundamentals of effective speaking, reinforced by many hours of practice, are essential to maintaining an effective speaking "touch."

The U. S. Army Command and General Staff College Effective Speaking Program is similarly patterned. The 16 formal curriculum hours in the Regular Course include a one-hour lecture on the fundamentals of speech, six hours of practice speeches, and nine hours of graded speeches. In the shorter Associate Course, the curriculum includes the one-hour lecture on fundamentals, one hour of practice speeches, and two hours of graded speeches. This is definitely an insufficient amount of time to devote to speech practice. How can the difference be made up without stealing vital curriculum time from the tactical subjects on which the curriculum is primarily oriented? The solution to the problem is simple—by insisting that the students practice their oral expression during student presentations and small group discussion periods. Since about 40 percent of the total classroom time is devoted to small group discussion (30 percent) and student presentation (10 percent), each student receives considerable opportunity to enhance self-expression. As in all USA CGSC instruction, the burden of learning is placed on the student.

Major George M. Bush was graduated from the United States Military Academy in 1945. His service includes duty with the 290th Engineer Combat Battalion and 41st Engineer General Service Regiment in Germany, and the 19th Engineer Group in Korea. He received a Master of Science degree from Harvard University in 1953. Upon graduating from the U. S. Army Command and General Staff College in 1957, he was assigned to the faculty. He departed for Okinawa in May 1960.

What Makes a Speaker Effective?

What fundamentals should the speaker review? How often? How can he tell if he is reaching his audience? The USCONARC directive previously mentioned has this to say about what makes a speaker effective:

Oral expression is not entirely measured by an officer's ability to speak with perfect diction, polished phrases, and precise grammar; but by his ability to present, clearly and effectively in words of his own choosing, those thoughts he wishes to convey to others.

In any line of endeavor when one applies rules or principles, one must adapt the rules to one's own capabilities. This also is true with speaking. What you say must be natural and apparently effortless. You may copy a Van Gogh painting, but it will sell as a cheap imitation. You may mimic Winston Churchill's speaking style, but your audience will see through the sham. Develop a natural speaking style.

The fundamentals which you should review can be obtained from any public library or purchased from a bookstore for a small sum. Most recognized speech authorities generally endorse the same principles. The techniques which they use for teaching the principles vary considerably. Since you will be using the self-teaching or review technique, any standard text—

or even this article—will suffice. Some of the more important aspects of speech construction and delivery, as taught at the Command and General Staff College, are presented in the following discussion. Although this discussion is primarily applicable to formal speaking assignments, it can be adapted to fit any speech situation.

Student officer delivers practice speech at the USA CGSC

Three Steps

There are three steps in executing a speech assignment.

Step 1: Surveying the Speech Situation.

This step includes audience analysis, determination of speech type and purpose, and subject selection.

Audience Analysis

The most important part of the survey, or preliminary planning, consists of analyzing the audience. Every word you say (if you are effective) will be heard by an audience. Your success as a speaker will be measured by audience reaction. You must construct and deliver a speech to fit a particular audience. To do this, you should determine (and use) such information as audience size, sex, age, profession, prior knowledge of the subject, educational level, mental ability, attitudes, and interests. Keep the audience in mind in every subsequent phase of speech planning and execution.

Speech Type

The second part of the survey consists of determining the type of speech you will use: impromptu, outlined, memorized, or read from manuscript.

The *impromptu* speech implies little or no preparation. A speaker may be called on unexpectedly and have for preparation only that time during his slow and often painful rise to his feet. An officer is frequently called on to speak impromptu—an unexpected briefing, during a committee

meeting, dealing with a delinquent soldier. Practice in the formal and prepared type speech, particularly the outlined speech, will increase your ability to speak impromptu. Exercise in this type speech is generated at the U. S. Army Command and General Staff College during the informal part of the speech program—student presentation and small group discussion.

The *outlined* speech is called "extemporaneous" by some authorities because the precise language of the speech is not prepared ahead of time. In contrast with the impromptu speech, however, the outlined speech requires considerable advance notice and many hours of careful preparation and rehearsal. In this form of delivery the speaker uses only an outline, written or committed to memory, filling in the detailed wording with a natural flow of words. The speaker does not use a prepared script. He must think on his feet. He can adapt the speech to fit the mood of his audience. The outlined speech shows the speaker at his best. Mediocre words and thoughts can hold an audience when they are delivered in this manner. Students of the Regular and Associate Courses are required to deliver their 10 and 15-minute graded speeches using the outlined speech type. You should use the outlined speech whenever circumstances permit.

The *memorized* speech is only appropriate for children or for actors. Only the best actors can make a memorized speech sound natural. Although a few officers may be engaged in amateur theatricals, the rest should not use this type at any time, except for the opening sentence of an outlined speech. By memorizing the opening sentence, a speaker can get over the worst of his stage fright, hit the audience with a dynamic and well-rehearsed introduction, and have a moment to collect his thoughts for continuation of the speech.

The speech which is *read from manuscript* is appropriate for long speeches without adequate time for rehearsal. Perhaps Charles Laughton is able to read a speech effectively. Very few others can.

When the US Army Chief of Staff is called on to make a television address or a speech before an influential civic group, his every word is carefully weighed. A mistake could be costly. A prepared manuscript has been reviewed in advance of its presentation to ensure that each sentence says what it should. It is logical that, in such a situation, the Chief of Staff should read his speech.

There are other occasions when a speech must be read, primarily because of lack of preparation time; but given a choice, you should deliver your speech extemporaneously. If you must read it, recognize the sleep-producing effects which it normally generates. It can be like a bedtime story for children. Put vigor and enthusiasm in your reading; give occasional offhand remarks; do not keep your head and eyes buried in the manuscript; be familiar enough with the wording that you can deliver it with only an occasional glance at the manuscript.

Speech Purpose

Determining the specific speech purpose is the third part of the survey. There is only one basic purpose in all speeches—to elicit a response from the audience. Many texts further classify the purpose as follows:

To entertain
To inform
To stimulate
To convince

Few speeches will fall entirely into one of these categories. The speech to convince the Congress to support an Army limited war capability will undoubtedly have informative value as well. A speech by Bob Hope to a soldier audience would likely be *entertaining*. The Army officer has little requirement for the speech to entertain, but frequent use for the other three. As an instructor or as a staff offi-

cer, you may be informing others as part of your daily routine. The briefing officer occupies a critical space in any large headquarters. It is important that you recognize that merely passing out the information falls short of the mark. You must pass out information in such a way that it is understood and can be applied.

The speech to stimulate takes an old idea and grooves it deeper. As a commander or staff section chief, you may be called on frequently to stimulate your subordinates to better performance in some well-worn area, such as coordination or military courtesy. Your success will be measured by how effectively you can put over an old idea in new words.

The speech to convince is the most difficult of all. You will be playing to an unsympathetic audience most of the time. Your audience will have made up its mind one way and will defy you to change it. However open-minded they may profess to be, convincing them will not be an easy task. The staff officer selling a new concept, the commander asking for an increased operating budget, both have about the same task that confronts the wife asking for a mink coat.

It is not enough that you identify one or more of these purposes as being applicable to your particular speech. Before proceeding with your survey you should write out on a piece of paper the precise purpose which you intend to accomplish. To illustrate: the purpose of this article is to inform you of the USA CGSC Effective Speaking Program and to stimulate you to apply the fundamentals of speech discussed herein in all of your subsequent speaking assignments.

Subject Selection

The last part of the survey consists of selecting a specific subject for your speech. When you are given the opportunity to speak, the general subject area probably will be determined. Your problem involves defining the limits of the subject. Without question, the most common failing of the average speaker is trying to cover a watermelon-size topic in a split pea period. If you are talking about tactical engineer bridging operations, tell about one bridge in detail, with all the tactical implications and the operations of other units, rather than cover five bridges in generalities. Give your listeners something specific. Make them feel they have learned something.

The subject you select should be related to your own interests, capabilities, and experiences. If you are speaking about community relations (a required topic in the USA CGSC speaking program), try to recall and relate some of the problems and solutions that occurred when you were at Fort Benning, dealing with civilians in Columbus, Georgia, or Phoenix City, Alabama. Do not try to talk about problems at a *Nike* site you merely read about in *Army Information Digest.*

The first and most important step in the survey is to analyze the audience. Do not forget them in selecting your subject. Do not tell a combined-arms audience about the "technical details of ordnance maintenance." Tell them about "critical ordnance support of a combat operation —past, present, or future." Tell them what they need to know or what they would like to hear about; and put it in a framework which they will accept.

Step 2: Building the Speech.

This step includes collecting the material, preparing the outline, wording the speech, and rehearsals.

Collecting Material

With the preliminary work out of the way, you are now ready to start collecting the reference material on which you will base your speech. The most obvious source is the library, or archives if one is available. Using whatever system is most convenient, you should record the significant facts or information which you propose to develop. A system of 3x5 cards may prove

helpful in this regard. The USA CGSC archives has over 200,000 items which are available to students of the Regular and Associate Classes in research for their speeches. Any American library can be a source of useful information.

There are two other sources which you should not overlook: personal experiences and creative thought. Without use of the latter two sources, your speech will lack that extra spark which will hold, convince, and stimulate an audience.

Speech Outline

It is difficult to build anything without a blueprint. The speaker uses an outline as his blueprint for speech construction. Many speech authorities recommend that each item in the outline be written as a full, complete sentence. Others suggest the key phrase or single word type outline. Whichever type you use, ultimately your outline will consist of an introduction, a main body, and a conclusion.

The main body of your outline should consist of two, three, or four main points. If this article were given as a speech, the main points would be:

1. Survey the speech situation.
2. Build the speech.
3. Sell the speech.

Do not try to develop too many main points because the audience will not be able to follow them. This is particularly important for a short speech (which, incidentally, is always the best speech).

The main points which you have listed should then be arranged in some logical order. A natural order is the best to use. Natural order refers to time, space, or motion. If you are speaking about Class I supply operations, arrange your main points chronologically. Discuss the ration cycle or ration interval starting at any convenient point of time and trace the actions of the quartermaster, the staff, or the consuming units in sequence. If your subject is armor organizations, use a schematic of the field army, and discuss the organizations from a space point of view. Start with the armor units in a division in contact and move back to the armored cavalry units used in a field army rear area security role. If you cannot use the natural order, here are some others you may consider:

Cause and effect.
Problem-Solution.
Common relationship.
Catalog (A, B, C, or 1, 2, 3).

The cause and effect and problem-solution orders are self-explanatory. The common relationship order requires amplification. President Roosevelt used this order in his Four Freedoms speech. The key word or mnemonic device is another example of the common relationship order. C O C O A* is a familiar term used to discuss the military characteristics of an area.

If the other orders will not fit your main points, then arrange them in catalog order, alphabetically or numerically (A, B, C or 1, 2, 3) and continue.

If you delivered the main points in your outline without supporting them in some way, your audience would neither understand nor believe them. Forms of support are designed to add clarity to, promote understanding of, and increase acceptance of your main ideas. Some forms of support which you can use are explanation, examples, comparison and contrast, quotations and testimony, statistics, and restatement. Fill in your outline with a liberal sampling of these forms of support. Do not stick to a single form.

Avoid the use of fifty-cent words selected to impress your audience; but if you have to use unfamiliar terms or ideas, explain them. An audience will not listen to what it cannot understand. If you look back to the second sentence of the preceding paragraph you will see a term, forms

* *C*over and concealment, *O*bservation, *C*ritical terrain, *O*bstacles, and *A*venues of approach. This term should now be changed to C O K O A, since "critical terrain" has been redesignated "key terrain" in accordance with international standardization agreements.

of support, which may have been unfamiliar to you before reading this article. Even after explanation, the term may have been vague. After seeing the examples of forms of support (restatement, statistics, quotations, and others), it probably became clear to you what the term means. Use examples to clarify your explanation.

Comparison and contrast are particularly effective in leading your audience from the known to the unknown. Tell your audience about the concept of synergism; explain that it means that the whole is greater than the sum of its parts; you will *not* be understood. Compare the concept with obstacles covered by fire. Mention that an obstacle covered by fire has greater effect than the same obstacle plus the same amount of fire but in a separate location; you will be understood.

Quotations and testimony, just like statistics, must be honestly presented from recognized and accepted authorities. These forms of support should not be given in overpowering doses. Like the drugs administered by physicians: in small doses, helpful; in large doses, harmful. On the subject of statistics, it is interesting to note that during a single academic year at USA CGSC there are 4,830 formal speeches presented by 1,410 different students. This represents a sizable contribution to the Army's program of speech improvement.

At this point, the main body of the outline is complete except for one item. No provision has been made for arousing and holding the attention of the audience. Most mature and dedicated Army officers are inclined to be on the conservative side. They are reluctant to advocate sugar coating for distasteful medicine, or dramatic methods for holding an audience. You might just as well face facts. An eager member of your audience can focus his attention on what you say for only five to seven minutes at a time. A passive member, even less. If you want the audience to hear what you have to say (and you are wasting everyone's time if you do not), then make optimum use of the time-tested interest-creating factors listed below:

Startling, unusual, shocking statements
Vital information
Specific terms
Familiar words or ideas
Humor
Visual aids
Variety

The longer the speech, the more care you must take in developing attention factors. The key to successful use of these factors is *variety*. If you cannot use the normal visual aids (films, slides, charts, maps, and others) in your speech, do not overlook the use of yourself. Proper use of head, eyes, hands, torso, and feet can add immeasurably to maintaining audience attention. Do not overwork the canned humor bit. It is more important that you maintain a good sense of humor, have the ability to laugh at yourself, or be able to make an offhand remark pertinent to the occasion.

Familiar words must, of course, relate to the audience. The "Frozen Chosen" will not ring a bell if you have never been in or near Seoul, Korea. Audience attention usually is good when its members can build up a mental image of what you are discussing. Therefore, specific words are helpful. A "weapon" is abstract. A caliber .45 pistol is specific.

Vital information concerns you personally—your pay, promotion, insurance, family, hospitalization, car, and future assignment. If your audience does not perk up when you mention these, chances are good they are already asleep.

Startling, unusual, or shocking remarks are the most effective attention-getters; however, they can be used only occasionally.

The main body of the outline is now complete. At this time, add the introduction and conclusion. The introduction should be short, but never omitted. During the introduction, justify your appearance, state your central theme, and, if you think

it appropriate, explain your purpose. Work hard on the introduction—it opens the listener's head so you can pour in the rest of the speech. The conclusion should hit again on the central theme and leave the audience in a proper frame of mind. Use an inducement, an appeal, a summary, a challenge, or a quotation. Make it to the point.

Detailed Wording

Natural fluency is a big help in the next phase of speech construction: the filling in and rounding out of the thoughts and ideas of the outline—preparing the detailed wording for the speech. If you have difficulty in expressing ideas orally, try writing out the speech. This will permit you to go back over the words, crossing out, substituting, polishing, and wordsmithing until you are satisfied with the product. Then tear it up or file it away. Do not try to use the detailed manuscript during rehearsals.

An alternate method is to think through the outline, mentally filling in the words. While you are shaving in the morning or walking to work, say the words to yourself. Develop alternate ways of expressing the same thought. Repeat the process until you are satisfied with your ability to discuss the topics in your outline in a natural, rapid, and coherent style.

Rehearsals

The rehearsal phase is the transition between speech construction and speech delivery. A well-prepared speech is doomed to failure if this phase is slighted. During rehearsals you will develop self-confidence, fix the outline of the speech firmly in mind, isolate and solve problems in expressing certain of the topics, and work out the transitions in the speech. As you move from topic to topic of the outline, the audience will lose you if they cannot identify the transitions. Three favorite and readily recognized transitions are the pause, body movement, and words or phrases indicating the conclusion of one topic and the start of another.

Rehearse as many times as you can. Rehearse by yourself at first. Rehearse in front of a candid, and unbiased friend. Solicit his opinion. Do not argue with him or justify your presentation. That is the quickest possible way to cut off his comments. Work out your own corrections for the deficiencies he identifies, provided you accept his critique as valid.

Students at the U. S. Army Command and General Staff College are fortunate in having adequate opportunity for comprehensive critique during both their practice and graded speeches. Speech classes are small (12 to 14 students in the Regular Class and five to seven in the Associate Class), and short (one hour at a time). Each speech period is introduced by the instructor who emphasizes some of the fundamentals covered in the introductory lecture. Each student in turn then presents his speech and receives both written and oral critique from the instructor. On certain occasions during the practice speeches the other students also are called on to critique the speech. Following the graded speech, each student receives a private critique from the instructor. Since only 16 instructors are assigned to participate in the speech program, they gain wide experience and competence in critiquing speeches.

Step 3: Selling the Speech.

This step includes speaker attitude, physical activity, and voice control.

Speaker Attitude

During that anxious, nervous, jittery period just before you begin to speak, if you can manage one sensible recollection, remember the word *enthusiasm*. Many faults in presentation will be overlooked if you are enthusiastic about your subject. It is as difficult to be bored listening to an enthusiastic speaker, as it is to avoid smiling when an acquaintance greets you with a smile. Speaking of smiling, it is

not a bad idea to try that on your audience, too; not like a grinning hyena, but with a warm and friendly attitude, even when the topic is a serious one.

Physical Activity

The next time you speak to an individual, notice whether he looks you in the eye when he speaks. Make a mental note of your reaction. Chances are 10 to three that you were favorably impressed with his sincerity, knowledge, and conviction if he looked you squarely in the eyes. If your audience is 200, the same psychological reaction will occur. There is no better way of establishing and maintaining contact with the audience than to look at them *one at a time*. Do not oscillate your head or eyeballs without settling on an individual. Do not look at your audience collectively; you will not see the individuals which comprise it. Do not overlook the people at the sides. Words may come more freely looking at the floor, but the audience will lose interest quickly in any conversation you may have with your shoes.

Good posture and controlled and deliberate use of your feet and torso are axiomatic in effective speaking. Physical activity should be natural and significant so that it adds meaning and power to what you say, rather than distracting and detracting.

The hands give trouble. Uncontrolled, erratic, nervous misuse of the hands is characateristic of the inexperienced speaker. Experience in speaking before live audiences probably is the best way to learn hand control. Watch good speakers. Observe how they manage their hands. Do not be reluctant to use your hands to gesture, to itemize points, to invite the audience's attention to a physical object, to demonstrate a physical activity, or to make any other *natural* hand movement. You can ignore *all* the rules on the proper use of hands, as long as what you do with them looks natural on you.

Voice Control

Practice natural pitch variation.—You know what monotonous means. You know it comes from monotone. Listen to a recording of your voice sometime. What range of notes do *you* hit?

Are you a tenor? Did you try to speak like a baritone because it sounds more manly? Console yourself that Abraham Lincoln spoke in a high-pitched voice; as an effective speaker he was tops.

Practice volume variation.—Drop your voice to a whisper as you are making a significant point. You will be amazed at the effect it produces. Do not continue it for a long period; your audience will refuse to strain their eardrums listening.

Turn up the volume as loud as you can without straining or yelling. If it serves no other purpose it probably will wake up those who have drifted off.

Between these two extremes lies a pleasant range of voice volume within which you can freely experiment. You can only make one bad mistake in voice volume control—no variety.

Practice rate variety.—A normal rate of delivery is 125 words per minute. Time your next practice speech. How many words do you speak per minute? If it is more than 125, you are probably losing your audience, unless the subject matter is extremely simple. If you are considerably less than 125 words per minute, you are wasting the audience's time and trying their patience.

Within a spread of 100 to 150 words per minute, you can get rate variety by slowing up over the difficult passages and speeding up over the light, easily understood parts.

Practice average articulation.—When you recorded your practice speech and played it back, were there any words which you could not understand? If there were, your diction was probably not good enough. Get the mush out of your mouth. Demosthenes used pebbles to good advantage.

Caution. Do not make the cure worse

than the illness. Do not overarticulate. It is probably better that your listeners miss a few words than that they become irritated by your manner of speech. Do not cause them to concentrate too much on the idiosyncracies of your hyperprecise diction.

The outline for this article can be expressed in 25 words or less. Though nothing extraordinary, it will illustrate the type outline you can develop for your speech:

INTRODUCTION

1. Survey
   - Audience analysis
   - Speech type
   - Speech purpose
   - Subject selection
2. Build
   - Collect material
   - Outline
   - Detailed wording
   - Rehearsals
3. Sell
   - Speaker attitude
   - Physical activity
   - Voice control

CONCLUSION

After studying and applying the principles of effective speaking, students at the U. S. Army Command and General Staff College show marked improvement in virtually every case. By the end of the course, fluency is a normal student characteristic. This result is not a function of what the students are taught. It is a result of what they learn through study, practice, and critiqued application.

Your contribution to the Army will increase with your ability to speak effectively. Your ability to speak effectively will increase with your application of the fundamentals outlined in this discussion.

Only by full use of your imagination and your initiative will you ever know your own capabilities as a leader. You will never know your capacity until you stretch yourself, or are stretched beyond what you think you can do or should do. You must seek additional responsibilities and develop broad interests and comprehensive knowledge.

Acquiring the art of leadership is simply a matter of mastering certain techniques, understanding men, and building up those sterling qualities that give effective full expression to your natural talents. The average man can be a good potential leader provided he is willing to work diligently at being one.

Lieutenant General Arthur G. Trudeau

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Army Plans More Aircraft—Fewer Types

Long-range plans for Army aircraft procurement call for an increase in the number of operational aircraft from the present 5,500 to 8,000 by 1970. Concurrently, the types of aircraft in the inventory will be reduced from 15 to seven. The first step in the changeover is the selection and procurement of a new light helicopter to replace the *L-19*, *H-23*, and *H-13* (MR, Jul 1960, p 72). By 1970 the Army is expected to have 3,500 light observation helicopters. The *L-20*, *H-19*, *H-21*, and the *H-34* will be replaced by a single type of turbine helicopter, the *HU-1 Iroquois*, starting in the very near future.

The Army's surveillance requirements of the immediate future will be met by the short takeoff and landing (STOL) *AO-1 Mohawk* now being tested, and a family of three drones. Approximately 250 *Mohawks* will be purchased by 1966. The 1970 requirement in the surveillance field is still under study. Two transports, the STOL *AC-1 Caribou* and the *HC-1B Chinook* helicopter (MR, Oct 1959, p 79) will provide the air mobility required in the combat zone. Approximately 300 of each are planned for procurement. A limited number of flying cranes probably will be procured in the 1960-70 period.—News item.

Missile Umbrella

Approximately 60 million people in the United States live under the protective umbrella of the missiles of the United States Army Air Defense Command.—News item.

'Redeye' Development Continues

An additional six million dollars has been allotted to research and development work on the *Redeye* surface-to-air guided missile (MR, Oct 1959, p 80 and Apr 1960, p 75). The development of the *Redeye* system is a joint program of the Army and the Marine Corps being conducted by the United States Army Rocket and Guided Missile Agency, Redstone, Alabama, in conjunction with a major industrial contractor.—News item.

Aerogenic Vaccine

The United States Army Biological Warfare Laboratories at Fort Detrick, Maryland, have developed a highly effective aerogenic vaccine against rabbit fever (tularemia). The discovery was called "another step forward in developing a defense against the potential threat of biological attack." Greater immunity to rabbit fever is provided by inhaling a live vaccine aerosol than by vaccination through the skin.—News release.

'USD-5' Turbojet Drone

The United States Army's *AN/USD-5* turbojet surveillance drone has successfully completed its first flight tests at the United States Army's Electronic Proving Ground's Drone Test Facility, Yuma Test Station, Arizona. Designed for missions requiring greater speed and longer endurance than earlier propeller driven drones, the *USD-5* will carry electronic equipment which will provide field commanders with continuous information on activity deep in the enemy's area. In initial tests the high-performance drone skimmed over the test range, passed useful data back to earth through the range instrumentation system, and, on command, parachuted to earth. The *USD-5* is a delta-wing craft with the wings placed near the rear of the fuselage. Ailerons are set into the trailing edge of the wings. A sweptfin and rudder provide the other control surfaces.—News item.

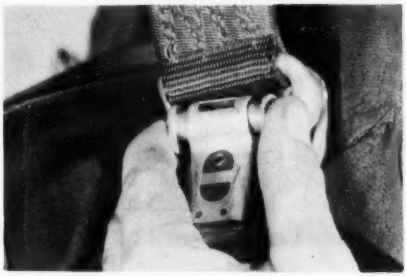
Parachute Canopy Release

The United States Army has adopted a new quick release device which permits a paratrooper to collapse his parachute

US Army Photo

Left safety clip open

canopy quickly and positively upon reaching the ground. One of the greatest causes of injury to air-dropped soldiers has been the drag caused by surface winds. The new device permits the quick release of either the right or left set of suspension lines, causing the air to be dumped out and the parachute to collapse. To operate the new release a safety clip must be



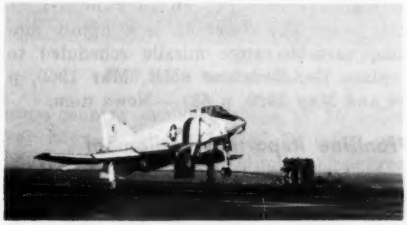
US Army Photo

Release buttons being depressed

flipped downward and two buttons depressed. Because of the three separate operations necessary to activate the assembly, accidental release is virtually impossible.—News release.

Carrier Trials For 'Phantom II'

The Navy's newest and fastest jet aircraft, the *F4H Phantom II*, made its first carrier landing aboard the *USS Independence* recently. The *Phantom II*, pro-

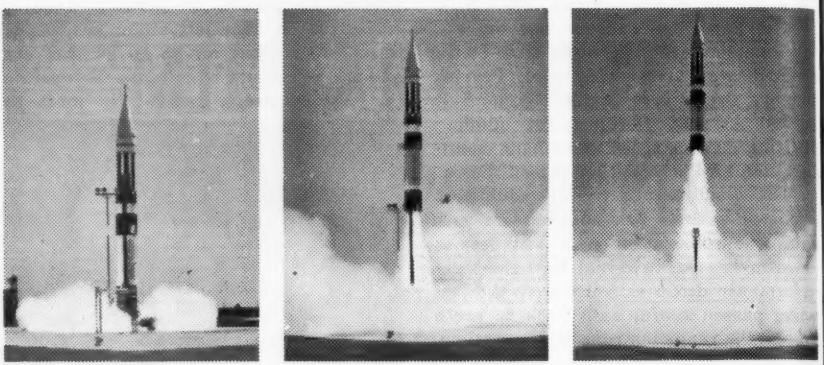


US Navy Photo

F4H Phantom II

gramed to replace the *F3H Demon*, has an air speed in excess of Mach 2 and the longest range of any Navy fighter. It reportedly is designed to carry four *Sparrow III* air-to-air missiles under the fuselage.—News item.

'Pershing' Scores Again



US Army Photo

Pershing **missile at launch**

The United States Army's *Pershing* inertially guided ballistic missile has passed additional firing tests at the Cape Canaveral test facility successfully. Each of the first four test firings of the weapon has met with complete success, indicating a high degree of reliability which is remarkable because of the speed with which the weapon was produced. Less than two years elapsed after the initial *Pershing* contract was announced until the first missile was successfully launched on 25 February of this year. The *Pershing* is a highly mobile, variable-range missile scheduled to replace the *Redstone* (MR, Mar 1960, p 68 and May 1960, p 63).—News item.

Frontline Reporting Equipment

A frontline tactical communications system, which instantly displays battle area situation reports on the face of a television type tube, has been designed by a manufacturer in coordination with the United States Marine Corps. Designated as *BASIC* (Battle Area Surveillance and Integrated Communications), the equipment consists of small, hand-held pushbutton message generators, a portable data processing unit, an electric typewriter readout, and a direct view display unit.

Message generators are used by forward observers to transmit situation reports swiftly to a command post in the rear. The message is set up by the observer through a series of rotary switches and is transmitted by a single short signal over his standard field communications equipment. The message is received, processed, and displayed within three seconds of transmission.

Target location symbols are positioned geographically on a map optically registered to the television tube face. Thus key personnel get an instant comprehensive picture of the entire tactical situation.

As intelligence on movements in the combat area is received by the command post, it is also automatically entered on typewritten cards which constitute permanent records.

Information on up to 50 targets may be displayed on the tactical map. Because of its high transmission rate, the system adds security to field communication.

Fully operational *BASIC* units will be field tested in the near future.—News item.

Italian 105-mm Howitzer Under Test

A new versatile 105-mm pack howitzer weighing only 2,860 pounds and readily air transportable is now being evaluated by the United States Marine Corps for possible use as a close support weapon.

US Marine Corps Photo

Italian 105-mm pack howitzer

Many other NATO nations including Great Britain (MR, Oct 1959, p 84) have shown interest in the weapon which was developed in Italy. It employs the standard United States 105-mm shell and can be broken into 16 component pieces, each of which can be man-carried readily.—News release.

'M60' Tank Production

The first production model of the Army's newest main battle tank, the *M60*, has been accepted by the Army (MR, Mar 1960, p 72). Contracts currently in effect call for production and issue of 1,080 of the new combat vehicles as a part of the Army's modernization program. The *M60* is an outstanding example of reduced leadtime in the development of a major weapon. Only two years have elapsed from the writing of the military characteristics for the vehicle, in the spring of 1958, to the receipt of the first production model. The first production contracts were awarded on 1 July 1959.

The 51-ton tank incorporates a 12-cylinder, diesel turbocharged *V* engine which produces 750 horsepower and affords a 30 to 40 percent greater cruising range than current armored vehicles of the same class. The use of 5,000 pounds of aluminum components in each vehicle has minimized its over-all weight and makes the *M60* 3,000 pounds lighter than its predecessor, the *M48*. Extensive field testing of prototype models of the *M60* has been conducted by the United States Army Armor Board at Fort Knox, Kentucky. These tests included around the clock operation of the vehicle, seven days a week from October through December of last year.

Operational characteristics of the vehicle include improved ground clearance, a

US Army Photo

***M60* main battle tank**

cross-country cruising speed of 15 miles per hour, a road speed of 32 miles per hour, and the ability to climb a 60-degree grade and to cross a three-foot vertical wall. The *M60* can ford streams four feet deep.—News item.

Annapolis Lieutenants

Seventeen midshipmen of the 1960 graduating class of the United States Naval Academy have elected to receive their commissions as second lieutenants in the Army rather than as Navy ensigns.—News item.

Dugway Radiological Test Area

The United States Army Chemical Corps is constructing a six and a half acre radiological test area at Dugway Proving Grounds, Utah, which will provide a controlled radiological environment for the purpose of testing nuclear effects on weapons, personnel, equipment, and facilities. The area will consist of a circular field surfaced with a cement and sand mixture. It will be surrounded with a concrete wall and an earthen embankment separated by a moat. Shielded entryways will permit test material to be moved into the area. Lead glass ports will permit visual observation of the experiments through the outer walls.

An intricate system of electronic and mechanical devices will permit the scientists and technicians in charge to control, record, and analyze the tests. Controlled amounts of radiation in the test area will be produced by the isotope Cobalt 60. The Cobalt 60 will be combined with metallic nickel to form pellets about the size of number eight shot.

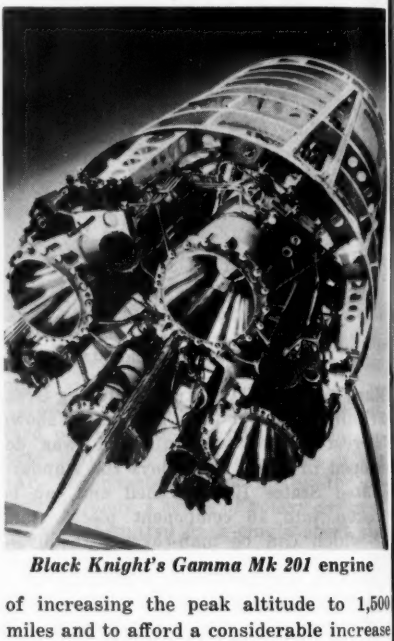
The pellets will be distributed in a uniform pattern of the desired density over the surface of the test area. They can be deposited, rearranged, or removed by an electromagnetic device. The dose rate may be varied up to 100 roentgens per hour by varying the density of the pellets.—News item.

GREAT BRITAIN

'Black Knight' Firings

The *Black Knight,* Britain's ballistic test vehicle, has completed a number of developmental tests successfully at the Woomera Rocket Range in Australia. In test flights the missile reached altitudes of up to 500 miles above the earth's surface and speeds 10 times that of sound. The missile tracking and impact prediction systems have proved highly accurate and have permitted rapid recovery of the missile head.

The *Black Knight* is powered by a *Gamma Mk 201* liquid propellant rocket engine, and is 33 feet, four inches in length and three feet in diameter. An improved version of the *Black Knight,* which incorporates a solid propellant second stage that is reported to be capable of increasing the peak altitude to 1,500 miles and to afford a considerable increase in speed at burnout, has been displayed publicly.—News item.



***Black Knight's Gamma Mk 201* engine**

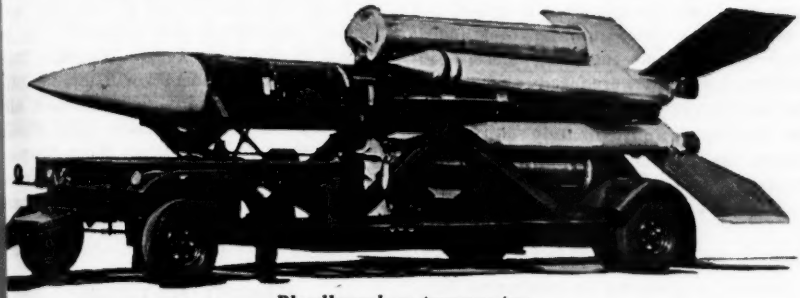
ARGENTINA

Navy Technological Institute

Argentina is establishing the Naval Technological Institute which will provide advanced training in marine engineering, electronics, naval construction, oceanography, and other related technical fields. A cooperative effort of the Argentinian Government and industry, the school will be furnished instructors, shops, and special laboratory facilities by the navy. Industry will provide technical facilities and financial support.—News item.

AUSTRALIA

'Bloodhound' Joins Australian Forces



Bloodhound **on transporter**

The British surface-to-air guided missile, the *Bloodhound*, will be delivered to Australian forces in November of this year. The missiles are being manufactured in the United Kingdom; however, the solid fuel for their rocket boosters will be produced in Australia.

The *Bloodhound* (MR, Sep 1959, p 80) is reported to be a semiactive homing missile, ramjet-propelled with four solid propellant boosters wrapped around the body of the missile. Although no performance data has been announced officially, the weapon is known to have destroyed target aircraft at altitudes up to 60,000 feet.—News item.

NORWAY

New Naval Base

Haakonsvern, near Bergen, will replace Horten as the main base for the Norwegian Navy and will serve as an operating base for allied naval forces in time of war. Construction of facilities for submarine and motor torpedo boat services and administration buildings at the new base has been completed. The entire base is scheduled for completion in 1962. A share of the cost of construction is being supported by North Atlantic Treaty Organization infrastructure funds.—News item.

JAPAN

Communist Forces In Far East

The Japanese Ministry of National Defense recently announced that Communist combat forces in the Far East are comprised of the following:

Soviet Union: 35 divisions with a total strength of 450,000 men; 600 naval units, including 110 submarines; and approximately 4,200 aircraft.

Communist China: 160 divisions with a total strength of 2.5 million men, naval forces totaling 150,000 tons, including 20 submarines; and approximately 3,000 aircraft.

North Korea: 18 divisions and five brigades with a total strength of approximately 54,000 men; 100 surface vessels with a total tonnage of approximately 17,000 tons and approximately 850 aircraft.—News item.

NATIONALIST CHINA

Infrared Countermeasures

Unofficial reports of recent air battles between Communist Chinese and Nationalist Chinese pilots indicate that the Red air forces may have developed effective countermeasures against the infrared homing warheads of the *Sidewinder* missiles employed by the Nationalists.—News item.

INDIA

Railroads Improved

Since 1949 India has pushed a widespread railroad improvement program. Old track has been relaid and new track added. Modern equipment including diesel locomotives has been purchased, and service has been improved greatly. Freight traffic has increased approximately 40 percent during the period—from 98 million tons to about 138 million tons.—News item.

LIBERIA

Airfield Improvement

Liberia is planning to modernize Roberts Field, the country's principal airport, about 50 miles from the capital city of Monrovia. United States funds will be made available through the Mutual Security Program to expand the airport to accommodate commercial jets.—News item.

WEST GERMANY

Submarine Fleet Planned

Work started in July on the first of 12 submarines to be built for the West German Fleet. The new undersea vessels will be of the 350-ton class. The first is due to be ready for sea trials by March 1961. Other naval construction includes the *Hamburg*, a 35-knot destroyer, which was launched recently. Three additional destroyers, all of the 2,850-ton class, are to be completed by 1963.—News item.

Armed Forces

The recent acceptance of 38,000 new recruits has brought the total strength of West Germany's defense forces to 256,000 men. Six thousand of the new men are volunteers and 32,000 are conscripts. The strength of the West German Army is now placed at 158,000 men, the air force at 61,000, and the navy at 22,500. Fourteen thousand, five hundred men are in the territorial defense forces, troop schools, and the defense ministry.—News item.

West German Bases In France

Agreement in principle has been reache on the establishment of West German supply and training bases in France, an formal agreements are expected to b signed in the near future. Reports indicate that the agreements will include provisions for the use of three French airfields by the West German Air Force. Negotiations for additional West German bases are under way with Great Britain, Denmark, and Norway. Bilateral base agreements have been concluded with Belgium and the Netherlands.—News item.

UNITED NATIONS

United Nations Emergency Force

Soldiers of a multinational security force continue to maintain an around th clock watch along the armistice demarca tion line between Egypt and Israel. Th United States recently paid slightly les than 6.5 million dollars to the United Nations as her share of maintaining th United Nations Emergency Force (UN EF) in the Middle East during 1960. Tota budget of the UNEF for the year is 2 million dollars. This international polic force was established on 5 November 195 to supervise the truce between Israel an Egypt.—News item.

COMMUNIST CHINA

City Communes Revived

The city commune organizations, whic were established in urban areas of Com munist China in 1958 and abandone shortly thereafter as a result of publi opposition, have been reinstated. The com mune concept is used to force worker into group living and provide an organ zational structure for labor brigades. Th National People's Congress which con vened in Peking was told that approxi mately 500 million of China's estimate 600 million people are now included i communes.—News release.

MILITARY DIGESTS

Withdrawals of the German Army On the Eastern Front

Translated and digested by the MILITARY REVIEW from an article by Colonel-General Kurt Zeitzler in "Wehrkunde" (Germany) March 1960.

A LOOK back on the fighting on the Eastern Front in 1943 and 1944 usually calls to mind only the great catastrophies of those years; the fall of Stalingrad, the belated evacuation of the Crimea, and the collapse of Army Group Center. The decisions and operations that have prevented similar, or even greater, disasters are seldom remembered. The successful defensive operations of Army Group Don and the first two planned major withdrawals of German forces on the Eastern Front, the withdrawal of Army Group A from the Caucasus, and the retreat of two armies of Army Group Center from the wide salient position belong to this category.

A planned withdrawal is as significant a form of combat as offensive and defensive operations, but in 1942, 1943, and 1944 no commander or general staff officer in the German ground forces was allowed to consider it. The Supreme Commander of the Wehrmacht and Commander in Chief of the Army, Adolf Hitler, did not know the word *withdrawal* and did not want to know it. He had forbidden the idea even to be mentioned to him. After the German eastern offensive had come to a stop in the winter of 1941-42, he admitted to only two forms of combat—"the holding of every foot of ground at all cost" and " . . . a new offense of the friendly forces."

In retrospect, it still seems like a miracle that these two withdrawals were insisted upon and achieved successfully. How the field command and the troops planned and executed these withdrawals despite Hitler's attitude and actually against his innermost beliefs, what result these retreats had, and what lessons they offered will be discussed.

But first, and for the sake of a better understanding of the reasons for these retreats, a look at the over-all situation of the German Eastern Front is indicated.

The Situation

On 22 November 1942, four days after the start of the Russian winter offensive, the situation on the Eastern Front was as shown in Figure 1.

Clearly, the Soviet High Command had revealed its hand. First of all, the Russians wanted to encircle the German 6th Army near Stalingrad. Then they probably wanted to advance to the Sea of Azov to annihilate the entire southern wing of the German Army in the east.

Whether they still would have enough forces left to nip off the wide salient position of Army Group Center at Rzhev could not be estimated clearly as yet. Soviet preparations for an attack in this area were evident. These could have been mock operations or preparations for local holding attacks, but they also could have meant the second phase of the large-scale Russian winter offensive.

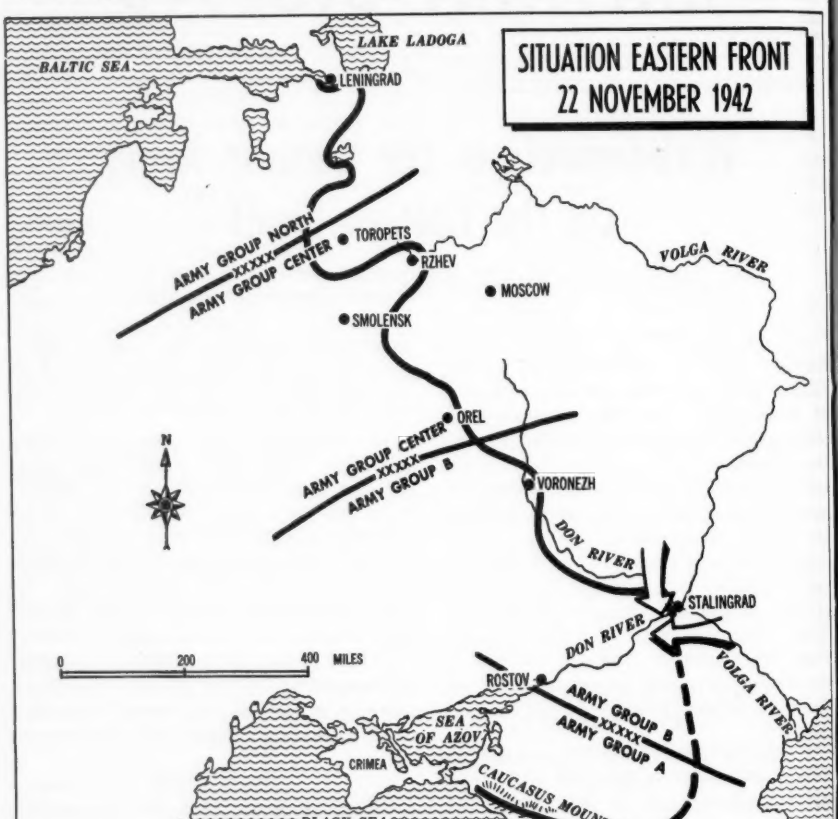


Figure 1.

The general staff of the German Army had the following plan: As an initial measure the 6th Army was to be moved back; then the Russian offense against the German southern wing was to be met with a mobile defense. Army Group A was to be withdrawn from the Caucasus, and the salient near Rzhev, held by elements of Army Group Center, was to be evacuated. This evacuation would have eliminated the danger at this point and much needed reserves would have been gained.

Hitler disapproved the plan. He rejected the employment of a mobile defense on

the southern wing just as sharply and abruptly as he had rejected the idea of withdrawal. His reasons in support of his attitude were only vague generalities.

We cannot withdraw everything right away just because of Stalingrad. . . . One must not lose one's nerve. . . . One cannot relinquish all the successes of the summer offensive.

His plan was to defend every foot of ground rigidly and to relieve Stalingrad. How he planned to gather the necessary forces for such an undertaking was still a complete mystery.

After having had his plans refused, the chief of the general staff of the army had no choice but to try again to bring Hitler to agree to all or portions of his plan before it was too late. The chief of staff of the army was not only supported in his opinions by the commanders in chief of Army Groups A and B, but also by the newly appointed commander in chief of Army Group Don who had assumed command of the southern wing of Army Group B. The commander in chief of Army Group Center had no desire to approach Hitler for authority to withdraw from his salient position. He had been refused so sharply during a prior attempt that he chose to remain noncommittal.

Withdrawal From the Caucasus

Toward the end of November 1942 the situation of Army Group Don had deteriorated to such an extent that the chief of staff of the army again approached Hitler with a request to withdraw Army Group A from the Caucasus. He explained that this withdrawal would need time. It would, therefore, have to be started soon if Army Group A was to arrive in time to assist Army Group Don. Again Hitler refused. He even expressly forbade preparations for such a withdrawal. He reasoned: "First we must wait for the outcome of our attack for the relief of Stalingrad. This will alter the entire situation with one stroke."

Once again Hitler had delayed the decision for weeks. In order not to waste all this time the chief of staff of the army contacted the commander in chief of Army Group A, since he knew that the latter, as well as his chief of staff, agreed that the withdrawal of Army Group A was necessary. Despite Hitler's prohibitions, they agreed to plan the withdrawal. This action involved considerable risk and could have cost the lives of those concerned. The preparations began quietly but thoroughly, and in complete detail. Everything was arranged so that the withdrawal could be effected immediately and rapidly upon receipt of a certain code word. Not a moment was to be lost when the time came. One thing was certain: if Hitler could be won over to a withdrawal from the Caucasus at all, it was going to be at the very last moment—at that time, every minute would count.

In the first half of December the commander in chief of Army Group Don requested that the 3d Panzer Corps with two panzer divisions from Army Group A be assigned to him. The chief of staff of the army endorsed his request and proposed to Hitler that the eastern point of the salient position in the Caucasus be withdrawn to free the divisions. Furthermore, he hoped that this would develop into the beginning of the general retreat from the Caucasus. Hitler refused.

On 23 December 1942 it became evident that the attack for the relief of Stalingrad had to be stopped. The army chief of staff reminded Hitler that he would now have to make his decision about the withdrawal of Army Group A from the Caucasus. Hitler's answer was: "Wait and see. Our attack on Stalingrad surely will regain momentum." Consequently, the army chief of staff had to look for a new way to achieve his intentions.

On 24 December he proposed to Hitler that Army Group A be placed under the command of the heavily engaged Army

Group Don. At the same time, he asked the commander in chief of Army Group Don if this move would be agreeable with him. The army chief of staff hoped that the commander in chief of Army Group Don would pull out so many units from the Caucasus front that an evacuation of the Caucasus, and thus the withdrawal of Army Group A, would become unavoidable. Hitler agreed to this proposition, and so did the commander in chief of Army Group Don, but with the proviso that he be given "complete freedom in the direction of operations." This Hitler refused, and again nothing came of the plan.

Preparation

After this proposition had been refused the army chief of staff took advantage of every meeting with Hitler to urge a decision to withdraw Army Group A from the Caucasus. This usually resulted in sharp altercations, for Hitler could not bring himself to give up the Caucasus. He denied similar requests from the commanders of Army Groups A and Don. Then the army chief of staff decided to wring from Hitler permission to take at least preparatory measures for an "eventual" retreat. Although these were already under way, they could not be pursued openly. This action was intended to get Hitler used to the idea that a retreat was inevitable. During the night of 26-27 December Hitler agreed.

At 0300 on 27 December the order went out to Army Group A to take "preparatory measures." Much was achieved by this step. The army chief of staff wanted the order to retreat to be issued as soon as possible. The developments at Army Groups Don and B indicated that it was high time.

For this second step the army chief of staff chose a kind of "surprise tactic." During the night of 27-28 December 1942 he drove to the Führer's headquarters without announcing himself. He wanted to speak to Hitler in private. The latter had retired already, and he was not to be disturbed any more that night. The army chief of staff said that the matter at hand could not wait. It worked. Hitler was alone and—strangely enough—in a very receptive mood. The army chief of staff briefed him on the situation and painted the future of Army Group A in very dark colors. He ended his report by saying: "If you do not order the withdrawal of the Caucasus front now, a second Stalingrad will result." Hitler was impressed. This had to be exploited. The army chief of staff implored him to agree to a withdrawal from the Caucasus at least. Hitler thought briefly. Then said: "All right, go ahead!" It was accomplished.

The army chief of staff left the room immediately. From Hitler's anteroom he telephoned the necessary orders to the chief of operations of the army general staff. The orders were to be transmitted to the front at once.

When the chief of staff returned to his own headquarters about an hour later, an aide was waiting for him. He was to come to the telephone immediately, Hitler already had called several times. The chief of staff thought he knew what Hitler wanted. He was right. "Forget about the withdrawal of the Caucasus front, we will talk about it some more," Hitler said. This would have delayed the withdrawal once more and this time it might have been too late. Another delay had to be avoided at all cost. The army chief of staff answered Hitler by stating: "This is no longer possible. The order has already been given; to revoke it would result in terrible confusion. I beg you not to stop it." Hitler hesitated, and then angrily agreed.

One day later Hitler ordered that the entire sector not be abandoned. A large bridgehead across from the Crimea was to be held. This bridgehead was to be used to mount an attack again the following

year. "The troops must see that we want to stay aggressive." Hitler could not be deterred from this thought. The chief of staff of the army could only hope that he could change Hitler's mind by constantly insisting on the subject. At the moment it could not be done. Much had been accomplished already and the withdrawal had commenced. However, the operation suffered because it had not been made clear how the retreat was to be carried out. Was everything to go back into the bridgehead, or should parts be directed toward Rostov? Hitler did not wish to commit himself definitely on that point. Further, he wanted the withdrawal to be extremely slow. Perhaps this was because he still hoped he could stop it.

Execution

Immediately upon receiving the order to retreat on 28 December 1942, Army Group A began operations preliminary to the withdrawal, particularly in the 1st Panzer Army which was located farthest to the east. (See Figure 2.) Troops in contact were not to be moved back from their foremost positions to their next phase lines until the night of 31 December-1 January. The alternate delaying lines were prescribed for the operation. These were the Zolka-Kuma line, the Cherkessk-Kalaus line, the Armavir line, and the Kropotkin line (Figure 2).

Before the Zolka-Kuma line and between the successive delaying positions, there were intermediate lines along which minor delaying actions could be imposed.

The disengagement and withdrawal to the Zolka-Kuma position went according to plan, in five stages from one intermediate line to the next. The commander in chief of the 1st Panzer Army had ordered that a breakthrough be avoided. Every opportunity to inflict a blow on the enemy was to be exploited.

Fog and poor visibility were favorable to the withdrawal, but alternating icy roads and thaw presented difficulties. Great effort from the troops was required to maintain mobility. Everywhere the enemy followed closely, but in most cases he was repulsed by the rear guards. The enemy had been able to break through in some areas, but these situations were always cleared up. Early on 8 January 1943 the Zolka-Kuma line was reached. According to Hitler's orders, this position was to be held for an indefinite period of time. He was still hoping that he would be able to halt the entire withdrawal. However, in view of the further deterioration of the over-all situation, continued movement to the rear was authorized the same evening.

During the retreat to the Cherkessk-Kalaus line, the enemy attacked several times with superior forces. Breakthroughs were achieved, but in spite of that the three intermediate lines held and the delaying position was reached and occupied during the night of 13-14 January. Again, according to Hitler's orders, this position was to be held for a rather long time. The enemy attacked the Cherkessk line with strong forces the following morning and throughout 14-15 January heavy defensive fighting for the 1st Panzer Army developed. In the meantime, the weather had changed. In bitter cold and snow, Hitler authorized the continuation of the retreat from the Cherkessk-Kalaus line.

On to the Armavir Line

The further withdrawal—now to the Armavir line—began on 16 January in a driving snowstorm and subzero temperatures. The enemy pressed the attack, but was thrown back by a determined counterattack of the 13th Panzer Division. These conditions compounded the problems of both the high command and the troops. There were losses due to freezing, telephones were cut off, and only radio communications made it possible to direct operations. Movement was slowed and consequently only one intermediate line had been reached by 19 January. This line

was about 60 kilometers from the Kalaus position.

Now the weather changed again. There was snow and thaw. In spite of deteriorating road conditions the retreat was accelerated. The enemy's pursuit grew less persistent and the infantry divisions withdrew as much as 50 kilometers per day over mountainous terrain. This was accomplished only at considerable effort on the part of the troops. The roads were so bad that the artillery pieces of the infantry divisions had to be pulled over the mountains by teams of 18 horses each. On 22 January the Armavir line was reached and, in compliance with orders, this position was held for two days.

The withdrawal to the Kropotkin line was begun on 25 January. Hitler still had not decided what the final aim of the withdrawal should be. The alternatives were either to move all of Army Group A into the bridgehead or to move only the 17th Army into the bridgehead and send

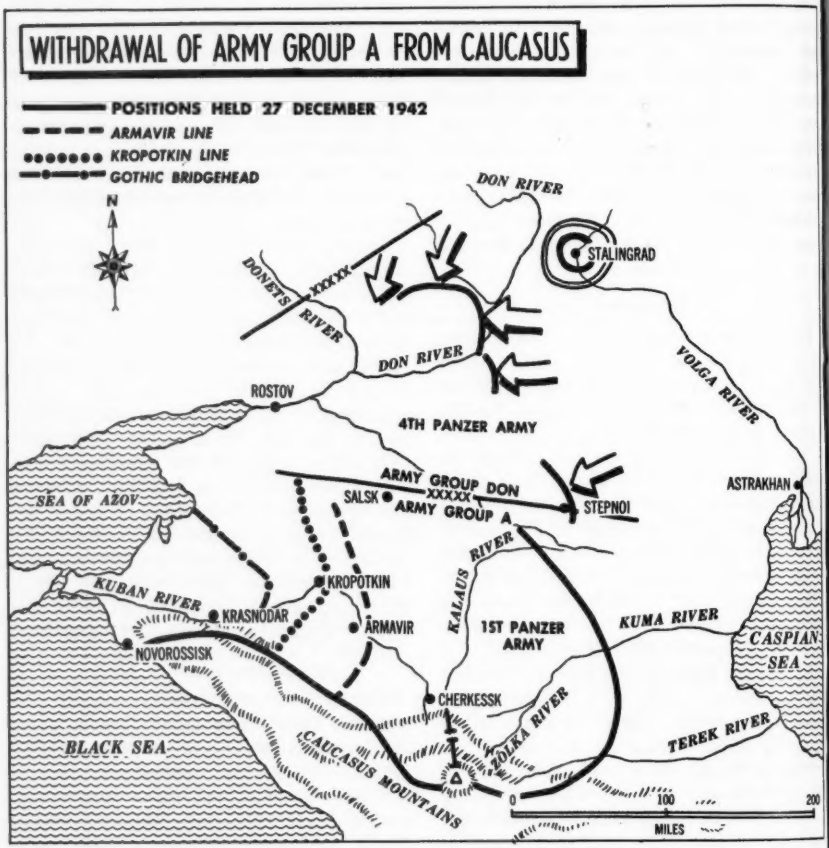


Figure 2.

the 1st Panzer Army to Rostov to join Army Group Don. He did not want to come to a decision before the Kropotkin line had been reached. In the meantime, there had been a new cold spell so that operations had to be conducted in bitter cold and storms. Again the enemy pursued more insistently. Nevertheless, the Kropotkin position was reached according to plan during the night of 26-27 January. Finally, Hitler had come to a decision. Army Group A with the 17th Army, reinforced by elements from the 1st Panzer Army, was to occupy the bridgehead (Figure 2). The 1st Panzer Army was to join Army Group Don in the vicinity of Rostov.

Starting from the Kropotkin position, the 1st Panzer Army moved toward Rostov on 28 January. The 17th Army went back into the bridgehead. The extreme cold weather continued, and on 29 January heavy snowfall added to the difficult conditions. The 1st Panzer Army's move was executed with only minor enemy interference; the 17th Army was still engaged in heavy combat. On 30 January the troops of the 1st Panzer Army came under the command of the 4th Panzer Army. The headquarters of the 1st Panzer Army was assigned new missions within Army Group Don. The 17th Army reached the bridgehead on 1 February 1943 to complete the planned withdrawal of Army Group A. The heavy fighting in the bridgehead of the 17th Army and its subsequent withdrawal from one intermediate line to the next, and the final relinquishing of the bridgehead will not be discussed here.

The Result

Originally there had been three objectives for the withdrawal of Army Group A from the Caucasus. First, to avoid the cutting off of communications with the rear of Army Group A and to prevent its being cut off from the rear of the Eastern Front. Second, strong elements from this army were to reinforce Army Group Don. Finally, these forces were to be available to Army Group Don as soon as possible.

The first objective had been attained but not the second nor the third. Of the 25 divisions of Army Group A, Army Group Don obtained only three divisions at the end of the withdrawal. The speed with which these three divisions had withdrawn left much to be desired. Neither the general staff of the army, the commanders in chief of the army groups, nor lower commanders and troops were to be blamed for failure to achieve these aims. The fault lay solely with the supreme commander of the Wehrmacht. He had waited much too long in making the decision to withdraw. Furthermore, because of the overextended bridgehead, he had ignored the second objective of reinforcing Army Group Don. He had hindered the withdrawal by his hesitation on the employment of the 1st Panzer Army and his orders to hold the delaying positions longer than advisable. He hampered the withdrawal so much that even the weary field commanders and troops had enough of it, and urged that the speed be accelerated.

Even though two of the objectives had not been attained, the withdrawal was a complete success and a brilliant accomplishment on the part of the field commanders and troops. Performance had been outstanding in the face of almost insurmountable difficulties and the worst possible conditions. In retrospect, one can but fully agree with the order of the day issued by the commander in chief of the 1st Panzer Army, when the withdrawal had been completed in which the army, its leaders, and the troops were complimented on the execution of a 600-kilometer withdrawal in complete calm and order and according to plan. He stated that:

The fact that the retreat has been achieved and the way it was done is primarily due to the efficiency of the troops and their command, who, in spite of daily

delaying actions and strong enemy pressure, have lost only a small number of missing men. The performance of each and every man in this army is beyond praise. They will go down in history.

The same was true for the 17th Army. While it did not have to cover as great a distance as the 1st Panzer Army, a difficult mission awaited it in the bridgehead.

During the withdrawal, the 1st Panzer Army was able to evacuate all its wounded, about 25,000 men, as well as all rear area installations. In the 30 days of the withdrawal and while the enemy incurred heavy losses, the 1st Panzer Army lost only 226 prisoners, 656 wounded, and 605 missing men. Only about 100 artillery pieces and heavy infantry weapons were lost; most of these had been destroyed because they could not be moved over the icy and muddy roads or because they had been damaged during close combat. Even the Soviet reports on captured materiel verified that only destroyed materiel was found.

But Army Group Don and its 4th Panzer Army also played a great part in the success of Army Group A's withdrawal. Army Group Don mastered the difficult situation in its area repeatedly, thus averting the danger threatening Rostov and the ground communications to the rear of Army Group A and enabling the 1st Panzer Army to cross the Don in good order.

In evaluating the results of the withdrawal of Army Group A, two observations are in order with respect to what would have happened if the withdrawal had been ordered in November—and if it had been executed without the bridgehead proviso—and what would have happened if there would have been no withdrawal at all.

In the first instance, Army Group Don would have obtained 20 divisions in December 1942. Many Soviet units in the Caucasus would have been free for other missions too, but the advantage would have doubtless been on the German side. In the second case Army Group A, with its 700,000 men, would have been deprived of all supply and reinforcement via ground communications after the fall of Rostov. Its rear would have been exposed and a situation similar to that of Stalingrad might have resulted.

Withdrawal of Army Group Center

As early as the fall of 1942 the commander in chief of Army Group Center—in agreement with the army chief of staff—asked Hitler to be permitted to move the salient near Rzhev back to a more flexible position. He wanted to create reserves for the expected Russian winter offensive and to be better prepared than during the previous winter. Hitler had refused harshly. He saw in this request only "the softness of his generals" who "always wanted to operate backwards." He even forbade the repetition of this proposal.

In November 1942 the chief of staff of the army broached the subject again in connection with the basic plan of the general staff. But again Hitler refused. He had thought of a new reason. "I need this salient for my next offensive. It offers a very favorable point of departure for my next offensive operations." Of course, this would have been a very important point if an offensive had been possible. But in view of the situation on the German Eastern Front, this was completely out of the question. The problem, instead, was to weather the present crisis on the southern part of the Eastern Front. For this purpose the units made available from Army Group Center would have been very welcome.

After Hitler's refusal, the chief of staff of the army and the commander in chief of the army group agreed to prepare the planned withdrawal in the form of theoretical war games. A further attempt to obtain Hitler's authorization at least for the setting up of *sehnenstellung*, a defen-

sive position across the base of the salient, also failed. Hitler's reason was: "If the troops at the front learn that a new position is being prepared for them farther back, they will no longer stand firm." Nevertheless, the army general staff began to bring up materiel to Army Group Center for this purpose. The army group itself began the undercover preparation of this position as far as was possible.

Not until the end of January 1943 was it possible to interest Hitler in the withdrawal of Army Group Center. At that time the Russian winter offensive expanded to the southern wing of that army group and tore a big gap in the front. The army chief of staff deemed the moment propitious to present to Hitler the absolute necessity for the withdrawal of Army Group Center. Based on the war games and calculations he explained exactly how long this would take and how many divisions would become available. Hitler listened to it all in comparative calm and with great interest. This was a good sign. Finally he asked: "Can you guarantee that everything will come back intact? Can you guarantee that the Russians will not attack and break through? Can you guarantee that divisions will really become available? Can you guarantee that the morale of the troops will not suffer?" The army chief of staff replied:

If the order is given in time, and if there is enough time for the planning, the preparation, and the execution, it probably can be guaranteed as far as the word guarantee can be used at all in connection with warfare.

Hitler was impressed but still he did not come to a decision. He gave in on 25 January only after renewed urging on the part of the army chief of staff and said: "Prepare it. However, I explicitly reserve the authorization for the execution." The preparations could now go into full swing. Furthermore, Hitler could be familiarized with the prevailing situation and could be accustomed to the idea of a withdrawal.

On 6 February 1943 a conference took place between Hitler and the commanders in chief of Army Groups Don and Center with respect to the situation and its probable further development. During this meeting Hitler gave his authorization for a withdrawal of the 4th and 9th Armies of Army Group Center to the *sehnenstellung** on 1 March. In this case also he made a condition as he had done during the withdrawal of Army Group A and the large bridgehead. He demanded that the elements that were going to be available would be used in an offensive which he intended to launch in the spring.

Preparation and Execution

Very complete plans and preparations were made for the withdrawal of Army Group Center to the *sehnenstellung*.

First, the withdrawal was planned in a very detailed general staff study and then played and examined in war games. On the basis of the knowledge gained, a file was compiled containing calculations, timetables, tabulated and graphic descriptions, sketches and situation maps, reports on necessary supplies, and requests of all kinds. Terrain reconnaissance had been conducted. Soon there emerged a clear picture of the new position and the multitude of details connected with a withdrawal of this magnitude.

Next the practical preparations began. This too was carried out very thoroughly, but rapidly, in around the clock work. A major problem was the evacuation of administrative installations, ammunition, equipment, materiel and food reserves; dismantling military installations, telephone lines, railroads; development of intermediate positions and withdrawal routes; the preparation for the demolition of military structures; and the installation of minefields for the protection of the inter-

* The *sehnenstellung* in this case was a defensive position at the base of the salient, the occupation of which would considerably shorten the front to be defended.

mediate positions and withdrawal routes.

The only noncalculated factor was the behavior of the enemy. In view of the preparations and measures that had been taken, his pursuit could, in all probability, scarcely become dangerous. The only danger was that the Russians might notice the German preparations to withdraw and try to attack the flanks of the salient. Consequently, these flank elements were reinforced.

The execution of the withdrawal began on 1 March and everything went exactly according to plan. First, the most advanced eastern and northern points were withdrawn. This was accomplished by 4 March. Thus the divisions made available were sent to reinforce the flank elements, and the withdrawal proceeded.

The enemy soon detected the withdrawal, but in the beginning followed very hesitatingly. He suspected a trap. Prior to this time he had encountered only German attacks or the stubborn holding of every inch of ground. Demolitions and mines held up the enemy for an unusually long time. It also seemed as though the Soviet High Command did not quite know what to do with this situation. A few hotheaded field commanders became impatient and rushed forward, but they incurred heavy losses and then grew cautious. Soon it was evident that the enemy's main pressure would come on both sides of the highway at Vyazma and from the north toward Nikitinka. (See Figure 3.) However, counterattacks threw the enemy back, and he was not able to interfere with the execution of the withdrawal.

By 12 March the midway point in the retreat was reached. On that day an intermediate position forward of Vyazma, which ran almost parallel to the *sehnenstellung* position, was reached. The remainder of the withdrawal developed as planned. The 4th Army reached the new position on 17 March and the 9th Army on 21 March. Thus the withdrawal—amounting to 160 kilometers at its longest point—was accomplished.

The Result

There had been two reasons for the withdrawal of Army Group Center: to remove the salient at Rzhev which was a constant source of danger, and to free units in order to make them available for other purposes. Both were accomplished. Because of this withdrawal of the salient, the 530-kilometer front was reduced to 200 kilometers. This enabled the army group to await the expected Soviet offensive in good defensive positions. The withdrawal made available reserves, consisting of 15 infantry divisions, two motorized infantry divisions, three panzer divisions, one SS cavalry division, and several command headquarters. This meant a reserve force such as had not been seen for a long time on the Eastern Front.

The preparation and execution of the withdrawal was exemplary in every respect. The command—from the high command of the army group to the lowest field staff—and the troops—from the front units to the rear echelon services—had performed outstandingly. The commander in chief of the Army Group Center with justifiable pride, therefore, could announce at the end of the withdrawal:

Withdrawal accomplished according to plan. The enemy was unable to interfere with the retreat. He incurred heavy losses. He did not feel victorious in any way. Our troops suffered only minor losses. In view of the planned course of events and due to local small successes against the enemy, our troops feel completely victorious.

Conclusions

Both withdrawals have demonstrated that retreats can be successes just as any other form of combat. They differed greatly in type, purpose, preparation, execution, and in weather conditions and enemy

activity. They further demonstrated that the losses of men and materiel can be kept surprisingly low if the preparations are thorough and the execution well-conducted. It has been shown also that the morale of the troops does not suffer if the high command takes certain advance measures. These consist either of efficient preparations, which give the troops a feeling of superiority, or the opportunity for local successes, which affords the troops a feeling of victory. In both withdrawals the morale of the troops remained excellent.

Without a doubt the decision to withdraw is always difficult. In every case something that had been won or owned is relinquished. But if it is clearly seen that without the withdrawal a catastrophe or unjustifiable losses would ensue, or that the withdrawal will create a far more favorable situation, then the decision is justified. In that event the decision should be made promptly. Every day that is gained is in favor of the contemplated

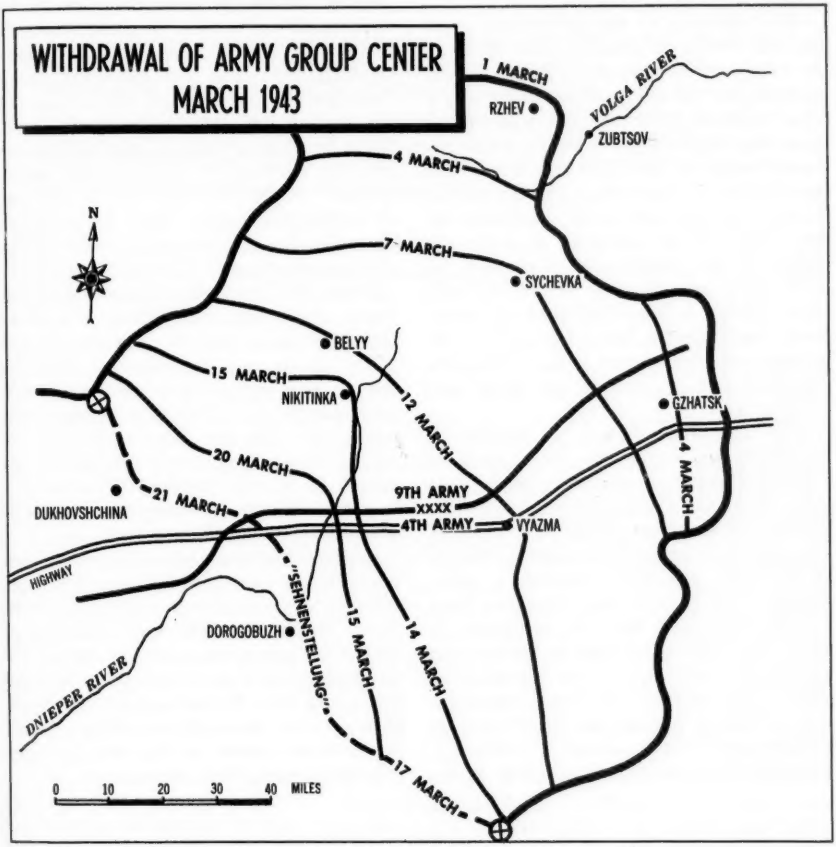


Figure 3.

withdrawal, and in some cases time is priceless. Furthermore, an early decision indicates to the troops that it has been taken through choice rather than a decision that has been forced upon one under enemy pressure.

The objective of the withdrawal must be clear and must be announced. This can be seen best by comparing the two withdrawals. In the one instance there was a clear objective from the start, where every plan and preparation could be made unhesitatingly. In the other case, there was vacillation and hesitation. This harms the cause and undermines the confidence of the troops. It is incorrect to make the speed of the withdrawal dependent on momentary situations as Hitler did with Army Group A. When the situation looked more favorable for Army Group Don, the withdrawal was slowed down. When the situation was precarious, the speed was accelerated.

The preparations for a withdrawal cannot be too meticulous. They must be thought through to the last detail. This pays off during the execution of the withdrawal. It also strengthens the trust of the troops in the high command, which is particularly important during a withdrawal. The factors that have not been exactly calculated must be considered in the preparations. It is best to presume an unfavorable situation in the planning as well as the execution of the withdrawal.

It is best to conduct the withdrawal in overlapping shifts (to alternate positions), provided there are sufficient troops available. Exploitation of darkness is particularly important. Consideration is given to the duration and degree of darkness, and the availability of moonlight. Prearranged reporting stations must constantly inform the commander as to the withdrawal's progress. Thus the command can synchronize all movements. It is particularly important that the withdrawing force not be penetrated. As the commander in chief of the 1st Panzer Army said: "It is imperative that no breakthrough be effected. Holding at all cost is secondary to this." Mines that are laid in advance or during the retreat must be arranged according to a precise mining plan. These plans might be used later as basis for an advance. Of particular importance is the timing of the bridge demolition in connection with a retreat. It must not be too early, so as not to endanger friendly troops. But neither must a bridge fall into enemy hands intact. All those concerned with the demolition must be thoroughly briefed, and responsibilities assigned to specific individuals. Authority to order execution of demolitions must be designated specifically.

At the end of the withdrawal, the troops must find a new position that has been well-prepared and is well-marked. This shows that the retreat was planned and that it has now come to an end. It is particularly useful if there are troops already waiting in the new position. There should at least be a team waiting which orients the arriving troops on the new position, minefields, and points of danger.

MOVING?

If you are moving, please notify the MILITARY REVIEW, Fort Leavenworth, Kansas, of your change of address. Be sure to include your name, *old* address, and *new* address.

Afghanistan--Dangerous Neutral

Digested by the MILITARY REVIEW from a copyrighted article by Staff Sergeant P. G. Gittins in the "Australian Army Journal" January 1960.

Standing as a keystone between the studied neutrality of India and the pro-Western Central Treaty Organization countries of Iran and Turkey, the geographical region occupied by Afghanistan and Pakistan assumes a strategic and political significance far greater than the area, population, or industrial potential of the countries might indicate. This article and the one on Pakistan that follows present the recent history and the internal, foreign, and military policies of these two countries.—Editor.

THE area now included within Afghanistan, of which the mountain system of the Hindu Kush forms the backbone, lies across the land routes from the Middle East and South Central Asia into the attractively rich and fertile Indus valley and the subcontinent of India. Historically, the recurring pattern of events for over 2,000 years has been for the area of the Hindu Kush to be invaded from the west or the north, and then, to be used as a base for the invasion of what is now Pakistan and India. The Indus valley, whether raided by needy tribesmen from the barren hills of Waziristan or threatened by heavier pressure from beyond the Hindu Kush, generally has been on the defensive.

For the possessors of the valley, there has been no comparable prize to seek in the Hindu Kush or beyond: the mountains simply have been a rampart they needed to see in safe hands.

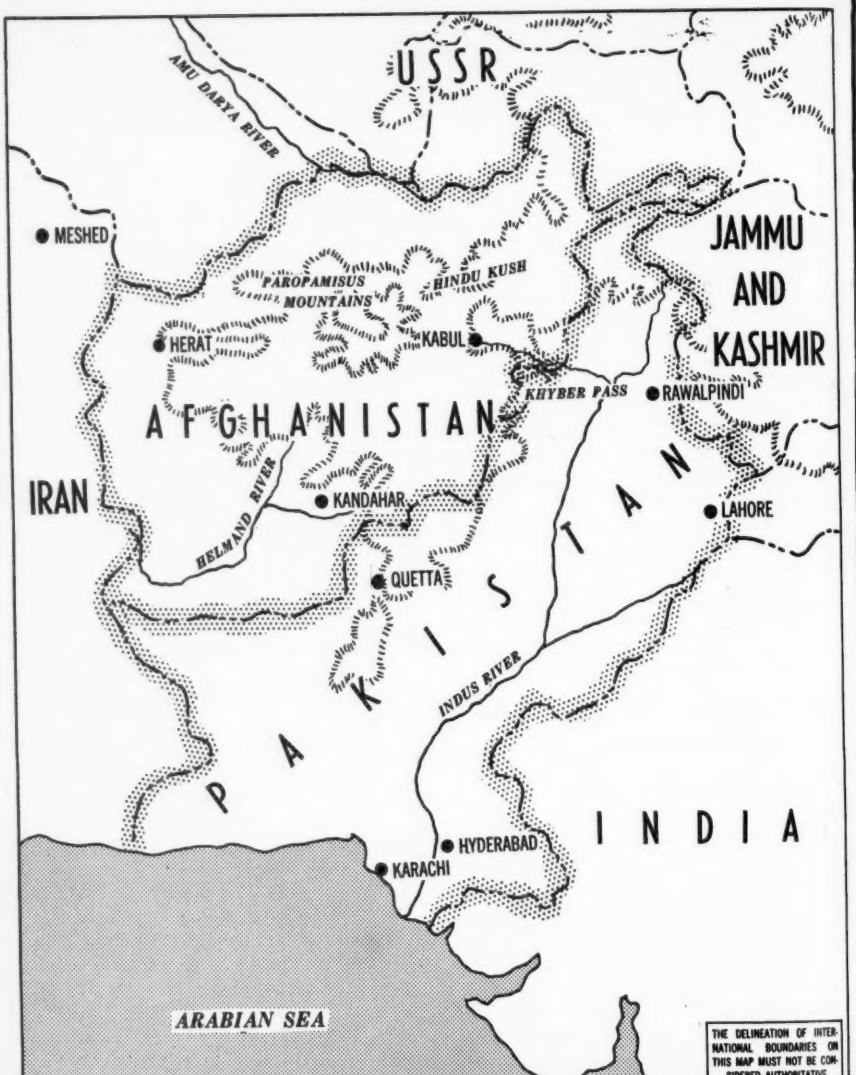
In these circumstances, and in the absence of any clearly defined "natural" frontiers, it was not until the 18th century that a sovereign State of Afghanistan emerged. Even then its existence was precarious until, in the latter part of the 19th century, the diplomacy of Great Britain and Russia transformed it from a traditional springboard for southward invasion into a buffer state. Peace and opportunities for progress and internal development in Afghanistan have been assured only when the country has harbored no threat to its southeastern neighbors.

The Land and Its Peoples

The area of the Kingdom of Afghanistan is approximately 250,000 square miles, and the population is about 11.5 million. It consists basically of a high plateau traversed from east to west and southwest by the formidable western spurs of the Himalayan chain, the Hindu Kush range, and the Paropamisus Mountains.

In this way the country is divided roughly into three main areas. A mountainous region in the central and eastern part consists of peaks which reach elevations of 20,000 feet in the east and drop to 10,000 feet or less near Herat. Between these mountains lie fertile valleys. The north of Afghanistan is a fertile plateau continuous with the steppes of Turkistan. Between the mountains of Afghanistan and those of her western neighbor, Iran, lies the third region: the deserts and semideserts of Registan and Seistan. The Helmand River runs through this area.

Over the high passes of the Hindu Kush and across the semidesert plateau of western Afghanistan lie the routes by which caravans and armies have passed from the steppes and Central Asia to the fertile plains of the Indian subcontinent. Afghanistan has served, too, as the route linking



AFGHANISTAN AND WEST PAKISTAN

Persia and Mesopotamia with both Central Asia and India.

Although traversed by trade routes, the physical obstacles of the terrain—the high mountains, deep valleys, and areas of barren desert—have made the establishment of a strong, closely knit state difficult. The geographical disunity of the Afghanistan area has been paralleled by the racial diversity of the population. This diversity is a result of the constant ebb and flow of conquest and migration during which Greeks and Tartars, Scythians, Persians, and Sikhs each have, for a time, held all or part of the land. At the present time, the largest racial group of Afghanistan is that of the Pathans or true Afghans, apparently of Turko-Iranian origin with some Indian admixture, who inhabit the central areas of the country. The Intro-Iranian language, Pushtu, which they and several other tribes speak, recently has been made an official language alongside the more developed Persian.

A second racial group is formed by the various tribes of Turkish origin, the Ghilzais, and the tribes inhabiting the northern steppe, such as the Uzbeks, the Turkmen, and the Sards. The Tajiks, who inhabit the mountainous areas north and east of Kabul, the capital, are Persian-speaking and of Persian racial origin, as are the settled population of Herat Province and Seistan. Probable descendants of conquering armies of long ago are the Mongoloid Hazaras from the area east of Kabul and the fair-skinned Kafirs of Nuristan who claim to have come in remote times from the far west.

Historical Background

For nearly 2,000 years the history of Afghanistan was that of a geographical area, not of a nation. A more or less regular cycle of events occurred. Periodically, conquerors appeared from over the Amu Darya River and established themselves on the northern slopes of the Hindu Kush. After a pause they passed through the mountains or outflanked their western spurs until they reached the passes into India. After a short time they went on to conquer northern India. Then a split came between those who ruled in the warm plains of India and those who remained in the cold uplands and steppes of Afghanistan. Occasionally, when the peoples of Persia or India came under a strong leader they asserted their sway even into the mountains of the Hindu Kush.

Alexander the Great, marching from Persia to India in 329 B. C., wintered near Kabul and founded the nucleus of a Greek empire which left its traces in the culture of the area and particularly in the self-governing walled villages of Balkh, the heart of the great and civilized Kushan Empire (120 B. C. to 350 A. D.) under which Buddhism was brought to Afghanistan.

This Helleno-Buddhist civilization was swept away in the 7th and 8th centuries by the proselytizing armies of Islam. The religious conversion was thorough; today, Afghanistan is a stronghold of Islam. In their turn, the Arabs were succeeded by the Mongols. In 1220-26 Genghis Khan laid waste to Balkh, Herat, Kabul, and Ghazni.

The rule of this Mongol dynasty lasted only a century and a half. It yielded to the Turko-Mongol dynasties founded by Tamerlane and Baber, of whose vast empires the Afghanistan area formed an outlying province.

It was from here that Baber descended to found the Mogul Empire in the Indian subcontinent. For a time Kabul and Kandahar remained only provinces of Baber's Empire.

For a little over 200 years (from 1526 until 1747), the land of the Afghans had been successively an aggregation of petty states, center of great empires ruled by foreigners, and a dismembered country furnishing provinces to three monarchs. In 1737 Nadir Shah, one of Persia's greatest monarchs, recovered Kandahar and

conquered the Indian province of Kabul. He conciliated the Afghans and enlisted many into his army—among them Ahmad Khan, a young chieftain of the Abdali tribe. Ahmad Khan rose to high rank in the Persian Army and, after the assassination of Nadir Shah in 1747, was chosen by the Afghan chiefs at Kandahar as their leader and assumed the royal title. For the first time, Afghanistan became a distinct political entity ruled by an independent native sovereign.

From 1747 until about 1921 Afghanistan was the scene of numerous uprisings, assassinations, wars, and intrigue. Development was naturally retarded. Her geographical location made her friendship important to Great Britain, India, and Russia. It was—and still is—of great strategic importance.

Development of Foreign Relations

In 1919 Amanullah, a leader of the young progressive nationalists, was concerned with establishing relations with other states and with Afghan participation in international affairs. The earliest diplomatic approaches were to Afghanistan's nearest neighbors, the USSR, Iran, and Turkey.

The factors which had led to the Anglo-Russian agreement of 1907 were no longer effective after 1917-18, and the Soviet Government subsequently showed no hesitation in taking every opportunity to increase its influence in Afghanistan. On 28 February 1921 a Russo-Afghan treaty was signed in Moscow which provided for formal diplomatic relations between the two states, for mutual recognition of Khivan and Bukhara independence (both were absorbed within the USSR in 1924 as parts of the "republic" of Uzbekistan and the "republic" of Turkistan) and for a number of conciliatory Soviet gestures toward Afghanistan. The Soviet Government continued to strengthen its relations with Kabul by various methods, including offers of the services of Russian technicians and technical facilities for the training of Afghan pilots at Tashkent.

Negotiations also were conducted between the two states in 1927 for the creation of the Kabul-Tashkent air service and for a trade pact. In 1926 the provisions of the 1921 Russo-Afghan treaty were amplified, but not superseded by a "pact of neutrality and nonaggression" between the two governments. A new treaty of "neutrality and nonaggression" was concluded on 24 June 1931.

In February 1921 Afghanistan signed a treaty of alliance with Turkey and, in June, a treaty of "friendship and good relations" with Iran. Afghanistan also entered into treaty relations with many other states both before and during the period 1927-28, when King Amanullah made a tour of many Asian and European countries, including a state visit to London. About the same time Afghanistan became a party to a number of important international agreements including the Red Cross convention on sick and wounded combatants (1906), the Universal Postal Union (1924), and the Kellogg Pact (1928). In September 1934 Afghanistan was accepted as a member of the League of Nations.

Overthrow of Amanullah

The innovations introduced by King Amanullah within Afghanistan were of a revolutionary character. Large-scale schemes for the building of trunk roads and for the creation of a new capital city were started. Critics have held that they took insufficient account of the small national income, and that practical needs such as the maintenance of law and order and the reform of taxation were neglected. More serious was the promulgation of a new administration code in 1923 which was held to violate the canons of Islam, and in 1924 a decree introduced some measure of female education and emancipation. The outcome was the Khost Rebellion of 1924-25. Although victorious, Amanullah

had to yield to the Afghan Great Council (*Loe Jirga*), which recommended the abolition or amendment of a number of the most hated reforms.

The royal tour encouraged Amanullah to make further attempts to introduce western ideas. In 1928 he placed before the *Loe Jirga* the outline of his proposed reforms: institution of a constitutional monarchy, parliamentary government, western dress, compulsory education for children, financial and currency reforms, and the suppression of the influence of the mullahs (preachers).

Opposition was universal, a rebellion broke out, and Amanullah fled to India.

Another king, Nadir Shah, was elected, law and order was restored, and although his reign was cut short after four years by assassination, his son gave the country a stable administration, sound finances, and provided a strong guiding hand to the cabinet of ministers.

Political Developments, 1930-57

Since 1930 Afghanistan has been governed by a cabinet of ministers in which the royal family is strongly represented assisted by an advisory council. The traditional *Loe Jirga*, whose members are elected for life, meets only in exceptional circumstances. In local matters many of the tribes exercise a measure of autonomy through tribal councils.

In 1935 the Afghan Government began to put into execution the policy of development laid down by Nadir Shah. The implementation of this policy has, of necessity, been slow and, on occasion, unpopular. By 1930 hydroelectric installations had been built, textile mills and machinery for the processing of cotton and sugar beets erected, the northern coalfields partially developed, irrigation systems built, the construction of hospitals and the foundation of a medical faculty commenced, and air and road communications improved. There are no railroads in Afghanistan.

In the period immediately after World War II shortages of both technical experts and foreign exchange resources, resulting mostly from reduced exports, seriously affected the economic development of Afghanistan. In 1950 a United Nations mission reported that the main requirement was for technical assistance at the operational level.

Since then, the specialized agencies of the United Nations have been giving technical assistance to Afghanistan in a number of fields. The most important of these have been the investigation of probable oil resources in the northern province; the establishment of improved air, road, and radio communications; improved animal husbandry, disease and pest control; technical education; and all aspects of health problems.

The United States is providing technical assistance in irrigation and drainage problems; soil, crop, and related problems in the Helmand valley; loans totaling 50 million dollars; and assistance in the development of communications.

Foreign Relations, 1930-57

It was under Turkish auspices that Afghanistan became a member of the League of Nations. Relations between the two states became increasingly cordial, and Afghanistan turned to Turkey for help in such matters as the provision of military instructors and medical professors. In 1937 both states, together with Iraq and Iran, signed the Sa'adabad Pact of nonaggression.

Despite contact with Germany in the 1935-39 period, Afghanistan proclaimed and maintained her neutrality during World War II. In 1946 Afghanistan became a member of the United Nations.

Afghanistan's principal external concern has been relations with her southern and northern neighbors. Thus when it became clear during World War II that major constitutional changes were impending in the Indian subcontinent, Af-

ghanistan was vitally interested. Her principal trade route lay through the port of Karachi, there were close linguistic and religious ties between the tribes on both sides of the Durand line, and there was considerable migration across the frontier. Furthermore, the Afghan Government was concerned that rebellious elements among the tribes of east Afghanistan might gain support from the tribes east of the Durand line.

The partition of the Indian subcontinent did not change the status of the tribal areas. The then United Kingdom Secretary of State for Commonwealth Relations, Mr. Noel-Baker, said that with regard to the territories on the former northwest frontier of India it was the view of the government of the United Kingdom that "Pakistan is in international law the inheritor of the rights and duties of the old government of India . . . and that the Durand line is the international frontier." A plebiscite taken was in favor of Pakistan by 289,244 votes to 2,874. A series of tribal *jirgas*, or meetings, were held in the unadministered areas by the provincial governor during October 1947, and the tribes transferred to Pakistan their previous relationship to and obligations toward the governments of the United Kingdom and India. Pakistan undertook to extend protection to them and to continue the allowances paid for the former government of India.

This settlement was unwelcome to the Afghan Government. Since 1947 a severe strain has been placed on its relations with Pakistan as a result of the officially conducted agitation in favor of the creation of a "Pathanistan" state. The essence of this claim is that the Pushtu-speaking tribes in northwest Pakistan, but not apparently those on the Afghan side of the frontier, should be given the opportunity to set up an autonomous state. Soviet leaders expressed sympathy with the Afghan policy on this issue during a visit to Kabul in 1955.

Afghan relations with Pakistan further deteriorated in March 1955 when a mob sacked and looted the Pakistan Embassy and Ambassador's residence in Kabul. This episode was not settled until the following September. After an exchange of visits between the Afghan Prime Minister and the Pakistani President, it was announced that conversations had taken place in an "atmosphere of warmth and cordiality." No advance appears to have been made, however, in the Pathanistan question.

Afghan-Soviet Relations

There have been important developments in recent years in relations between Afghanistan and her northern neighbor, the USSR. There is little racial, religious, or geographical distinction between the dwellers on the north and south banks of the Amu Darya River which constitutes much of the Russo-Afghan frontier. The Afghan-Pakistani frontier region is rugged and an economical liability rather than an asset, however, the northern Afghan provinces of Maimana, Mazar-i-Sharif, and Kataghan are the source of much of Afghanistan's wealth derived from the raising of karakul lambs, the growing of cotton, and the working of mineral deposits such as coal and sulphur. The Afghan Government has based considerable hopes for the development of the country on the exploitation of the oil resources believed to exist in these areas.

Arrangements were completed in 1952 for an oil survey (including test drilling) by Western technicians working under the United Nations Technical Assistance Administration. In August of that year, the Soviet charge d'affairs in Kabul informed the Afghan Government that the employment of Western technicians on this work in northern Afghanistan would be regarded as an unfriendly act. Although denying the Soviet Government's right to interfere in Afghan internal affairs, the project was shelved.

On the other hand, there has been con-

siderable development toward closer Russo-Afghan ties. A four-year commercial agreement was made in July 1950, and a Soviet trade agency is operating in Kabul. Since 1953 Afghanistan has accepted numerous Soviet offers of technical assistance. According to a Soviet broadcast on 17 September 1954, that year marked the beginning of a new stage in the development of Soviet technical aid to Afghanistan. Credit had been granted by the USSR for the building of grain silos and mills for the construction of oil storage tanks, and for additional development of road, air, and radio communications. In 1954, a Soviet cultural mission visited Kabul.

Mr. Bulganin and Mr. Khrushchev visited the country in December 1955, and in joint statements issued later it was announced that the 1931 Afghan-Soviet treaty of neutrality and nonaggression would be extended for 10 years. It had been decided to "expand the friendly political, economic, and cultural contacts" between the two countries. Representatives would meet to consider cooperation in developing agriculture, hydroelectric stations, irrigation systems, motor vehicle repair shops, and the reconstruction of the Kabul airport. The USSR agreed in principle to extend a long-term loan of 100 million dollars for the development of Afghan economy, providing an agreement was signed at the end of January 1957.

American-USSR Rivalry

Four years ago the Soviets moved into Afghanistan and set out to show their beneficence. The Americans had been in the country since the end of World War II. The Russians suddenly decided that anything the Americans could do they could do better.

The Afghans wanted hard-surface roads in Kabul which, for six months in the year, was a bog, and for the next six months a dust bowl. They asked the Americans to build the roads, and the Americans replied, correctly enough, that it was much better to reclaim desert. The Soviets built the roads—very good ones too—and put Soviet buses and taxis on them. The Americans got Pan-American Airways to bolster up the Afghan Airline. The very day the contract was announced, the Soviets revealed that they were building a fine new airport at Kabul. The Americans made a very good color film of Afghanistan—the Soviets made an even better one. The Afghans wanted more bread and the Americans tried to provide it with an irrigation project. The USSR built a bakery in Kabul and silos to store the wheat.

Highly valued Persian lamb skins, once earning dollars, now began to earn rubles. Faithfully the Afghans kept the Soviets out of their schools. They were determined there would be no Communist subversion of their country. But when *MiG* fighters and helicopters arrived from the USSR for the Afghan Air Force, it was essential that cadets should receive their training in the Soviet Union.

A kind of Soviet Colombo Plan took technical students off to USSR schools. None have gone to American schools.

Afghanistan's history of relations with her neighbors has been a pretty sorry one. Today, many in Kabul feel that in the Soviet Union they have found a real friend.

Military Developments

The organization of the army was based on a scheme formulated in 1917 for an establishment of six corps with headquarters at Jalalabad, Matun, Herat, Mazar-i-Sharif, and Kabul (two corps). Additional corps or divisions are now located at Kandahar, Ghazni, Urgun, Khanabad, and Gardez. Recruitment is on a voluntary basis with some element of compulsion, since quotas are allotted to areas. The total strength of the army in 1939 was about 60,000. This was raised during the World War II period, chiefly by the recall of discharged men. It is probable that in

the event of war 300,000 to 400,000 armed men could be raised.

The forces are armed with modern weapons, including tanks. Military schools, once under Turkish supervision, are now staffed to some extent by Soviet "advisors and technicians." A certain amount of motor transport was purchased at the end of World War II, and this has been supplemented by Russian trucks. Thus the army's mobility has been increased. A reorganization is in progress with the object of providing a central reserve from which a mobile striking force could be furnished to support provincial troops.

In the country's northern province, Soviet aid is transforming potholed Afghan roads into paved superhighways, including one that runs from the Soviet railheads and ports on the Amu Darya River, 390 miles south to Kabul. United States aid includes construction of some 500 miles of road from Kabul south and east to the Pakistan border. Although it was not intended that way, the roads will provide the Soviets with a perfect network of all-weather roads running from the Amu Darya to the Khyber Pass, the traditional invasion route into India from the north. A primitive country is not only being developed, it is being made strategically useful.

The presence of Soviet troops in Afghanistan has been reported since 1954, but apparently little notice has been taken of it. However, reports from May 1959 indicate that the Soviet Union has increased the number of troops there. This has caused a certain amount of tension and nervousness around Meshed, capital of Iran's Khurasan Province. From Afghanistan, Soviet troops could move forward to divide Iran from Pakistan, her neighbor in the Baghdad Pact. Troops and forward dumps of military equipment have been located at Herat, which straddles a main approach to Iran.

To the British, the Red Army penetration in Afghanistan recalls the fears which haunted Queen Victoria's Viceroy in India nearly a century ago.

A small air force is in existence, once again supplemented by Soviet "advisors and technicians," *MiG* fighter planes, and *Ilyushin* jet bombers. More significant, a network of airfields has been constructed in northern Afghanistan, greatly reducing bomber range to Tehran, capital of anti-Communist Iran, and Karachi, commercial heart of anti-Communist Pakistan. Scarcely 40 miles from Kabul lies the huge new Pagram airfield with runways long enough to take the Soviet Union's biggest jets.

Conclusion

The inaugurator and chief manipulator of Afghanistan's "profitable" neutrality is tough Prime Minister Mohammed Daud. He took over the premiership about six years ago, and deals with everything from high policy to trivial administrative details. He claims his objective is to improve the lot of his people to the point where they can choose the kind of government they wish.

Daud's avowed excuse for his close relations with the Soviet Union is that he needs support in his running quarrel with neighboring Pakistan over "Pushtunistan." In point of fact, his "reckless neutrality" clearly rests on his belief that by cashing in on cold war rivalries he can push Afghanistan's development at a rate the country could never afford by itself. To the occasional warnings he is given by his ministers he replies with all the confidence of a high-wire performer, "I will personally guarantee that everything will come out all right."

For 100 years the British raj preserved Afghanistan as a buffer state between the USSR and India. Then the British Empire folded. Afghanistan, a victim of the vacuum thus created, has now passed the Communist point of no return.

The Evolution of Pakistan

Translated and digested by the MILITARY REVIEW from an article entitled "Ankara and Karachi: Identical Problems" by René Vallet in "Revue de Défense Nationale" (France) February 1960.

PAKISTAN is a recently created "crossroad" state between the Asiatic Middle East and Southeast Asia, and is united for mutual defense in the Central Treaty Organization with Iran and Turkey.

Pakistan was created as a self-governing nation in 1947. She has a population of 83 million people located in two geographical regions separated by 1,700 kilometers of Indian territory. This distance between the Pakistani of the two regions, their different origins, customs, and languages complicated the forming of a single nation. The country was a prey to political factions and crisis followed upon crisis. Black market, contraband, and corruption prevailed everywhere: there was a large deficit. Disillusionment was great among the masses.

It was not surprising that a military *coup d'état* took place in October 1958 without bloodshed which was endorsed immediately by the great majority of the population. The principal instigators of the coup were the President of the Republic, General Iskander Mirza, and the Commander in Chief of the Army, General Ayub Khan, both highly respected. When the revolution was over, Mirza transmitted all his powers to Ayub in order to avoid the impression of dual control.

The new regime can be judged by its accomplishments. Agrarian reform, which previously had been blocked by the great landholder interests, has been carried out, particularly in the eastern part of Pakistan where the land suffered under an almost feudal regime imposed by Lord Cornwallis in 1793. More than 50 percent of the farmland in the Punjab region, somewhat less than half in the northwestern province, and more than 90 percent in the Sind region was in the hands of landowners who did not work their own land. It was rented to tenants who could be thrown off without notice. Another class of landholder, the jagirdars, owned tax-exempt land and had the right to collect tax levies from their tenants.

In the future no landowner can own more than 400 hectares of nonirrigated or 200 hectares of irrigated land. Thus more than one million hectares have become available, and have been redistributed. The farmers have been granted government loans, repayable over a 25-year period, with which to pay for their land. The landowners are being compensated by the state. The rights of the jagirdars have been abolished without compensation, and over 300,000 hectares in their possession have been redistributed. Two million farmers have benefited from this act. As a result, increased production eventually should bring an end to the food shortage.

The refugee problem also is being solved. Unfortunate millions, who left their possessions behind in India when they moved to the new country, had led a pitiable existence in temporary villages around Karachi. The former government had promised to compensate them from the proceeds of the sales of property of those Hindus who had been repatriated to India, but this was never done. Today, most of these cases have been settled to the satisfaction of the refugees.

The new regime has concerned itself with the housing shortage and, within five months, the town of Koradji was constructed near Karachi to provide shelter for 15,000 families. Other satellite towns have appeared throughout the country.

The government recently transferred its seat from Karachi to Rawalpindi in the north of the Punjab region which will be-

come the new capital in a marvelous setting at the foot of the Himalayas. This transfer was intended to move the administrative machine away from the financial and trade circles of Karachi which exerted so much influence under the preceding regime.

A great hydroelectric dam has been constructed by Canadian engineers at Warzak on the Afghan border with funds from the Colombo Plan. Starting this year it will bring the waters from the Kabul River to 50,000 hectares of desert in the northwest part of the country and will double the electric power resources of western Pakistan.

The average Pakistani feels that he has an honest regime. Confidence is reviving, industrial production increasing, the fiscal returns are satisfactory, and the austerity policy has raised the foreign currency reserves by 50 percent. Corruption has decreased greatly, and prompt military justice has succeeded in inspiring respect for the law.

General Ayub's aim is to restore a democracy that the Pakistani can understand and apply. Through an ordinance issued in October 1959 he provided for a municipal council system on different levels with two provincial advisory counselors at the head of the pyramid who will be chiefly concerned with economic development. These local government organs will be given extensive powers on all municipal questions and will even collect taxes.

In the field of foreign affairs the most noteworthy event of the past months has been closer relations with India. The recent manifestation of Communist Chinese imperialism is doubtlessly at the base of this easing of tension. It could not have come about, however, without the establishment of a strong, stable, and popular regime in Pakistan, capable of negotiating with the necessary authority on questions that have for too long been subjected to blind and chauvinistic passions.

Much remains to be done before complete confidence will be established. The problems of Kashmir and the division of the waters of the Indus basin and its five tributaries have strained the relations between the two countries; the efforts of the United Nations have been in vain. Last, Pakistan too, has border problems with Red China. The Communist forces have been very active on the border between Sinkiang and the northwest of Kashmir occupied by Pakistani. This is another border that has not been defined.

In any event, Pakistan remains vigilant and solidly established in the Western camp. Being a member of the Central Treaty Organization and the Southeast Asia Treaty Organization, she has received military equipment from the United States. The value of her army should not be underestimated. It has proved its worth at the side of Great Britain on most battlefields of both World Wars. What Pakistan has lacked is internal stability, and in this respect Ayub's success can but strengthen her resistance against world communism at a moment when this is particularly necessary in the Far East.

Thus it can be seen that Pakistan's main problems are in the area of foreign politics and security, and in the field of economics. The exceptional qualities of the peoples vouch for success in overcoming these difficulties, thereby increasing the defensive forces of the West and effectively contributing to continued peace.

Strength Through Mobility

Digested by the MILITARY REVIEW from a copyrighted article by Captain A. J. V. Kendall in "The Royal Engineers Journal" (Great Britain) March 1960.

THE flood of unrest pervading many peoples of the world today grows apace. Fanned by an immature but fervent nationalism, often supported or subversively encouraged by communism, this upheaval strives for independence for most of the countries hitherto dominated by European rule or influence, and generally assumes an anti-Western or anti-British outlook. With our widespread colonial responsibilities and dependence on imports and unhindered trade routes, we feel the effect more than any other major power, France possibly excepted, in terms of military effort. With the inevitable expansion of this sense of self-importance among the new nations, and the continuance of the cold war, our military commitments are likely to increase rather than lessen in the years immediately ahead. Yet the army, as National Service dwindles to a close in 1962, is becoming far smaller. The current problem, therefore, is how best to meet this situation in terms of the organization, disposition, and equipment of the new army.

The problem is mainly domestic in character. Allied assistance can be considered only as a bonus. To have a reasonable chance of meeting a succession of varying and widespread calls at irregular but not infrequent intervals, the army must possess true global mobility. In other words, units and formations must be held in one or more central bases from which they can move at short notice, by the quickest available means, to any actual or potential trouble area. Not only must they move as fully operational bodies, but must be able to continue as such without further logistic assistance for the initial stages of any likely task. This has been national policy for several years, but shortages in manpower and aircraft, and the uncertain political future of many overseas bases, have retarded its practical fulfillment seriously. How, in fact, with the resources and bases at our disposal for the next decade or so, can this policy best be put into practice?

The Postwar Period

It is probably reasonable to say that the danger of an all-out nuclear war remains small while nuclear parity exists between East and West. Large-scale conventional war is also unlikely, as this inevitably would lead to the use of nuclear weapons. Therefore, the army's main task in the 1960's, apart from permanent NATO commitments in Europe, is likely to be the protection of British interests against "nationalist" and cold war outbreaks in various shapes and forms. The general pattern of military operations may well be small localized actions or internal security tasks in areas where British property, persons, or trade are being threatened, endangered, or attacked. In this event, the soldier's job will be the maintenance or restoration of law and order in support of the lawful civil authority. Events of this nature, where the requirement is for manpower rather than firepower, have been abundant in the 1950's, and surely will continue. A glance at a few incidents of recent years will not be out of place.

The situations that arose in Aden and Oman in 1957 were of a familiar type. Korea, as a full-scale war, and Malaya, Cyprus, and Kenya, as extended emergencies, are in a somewhat different category; but British Guiana, Jordan (both in 1956 and 1958), the Arabian Peninsula, and the 1956 Suez crisis each provide a separate example of occasions where

troops were required posthaste at or near a trouble spot. Yet only in Jordan in the summer of 1958 was the treatment truly effective; and it is still worth considering the possible course of events had the request from King Hussein, demanding an operation direct from the United Kingdom or Kenya instead of from nearby Cyprus, come a month earlier.

On most other occasions the performance has been distinctly unsatisfactory. In no case has it produced properly equipped troops on the required spot at the right time and in the right numbers. Sometimes, due to lack of aircraft, a naval carrier has been diverted from its normal role to act as an emergency troopship. In fact, when aircraft have been available, normally they have been service or civilian types capable of carrying little or nothing in the way of troops or heavy equipment; and their limited numbers, allied to a small carrying capacity over long ranges, normally have resulted in a shuttle service airlift which in turn means days or weeks before a unit becomes fully operational at its destination.

Furthermore, on no less than four separate occasions since 1951 has the parachute brigade been called upon to move quickly to the Middle East to counter some crisis or another. Admittedly, this formation is well-trained and suitably equipped, but is it sound to call upon it time and again for a job which usually bears no direct relationship to its particular role as our only regular airborne brigade?

Recently, we have seen a considerable advance in the creation of a substantial strategic reserve at home. This is composed of infantry brigade groups—and the parachute brigade when available—trained in probable cold war tasks, but even so the concept of a highly mobile, operationally ready force has been sadly unimpressive when translated into fact. Air movement exercises too have merely underlined the need for a radical improvement in this field of operations. With a far smaller army than in the past—containing only 49 infantry battalions with a ceiling of 180,000 in 1963—ensuring that this concept becomes an effective reality will be no easy task.

The scope of our responsibilities and the reduced size of the 1963 army prevents the maintenance of overseas garrisons at or near every trouble spot. Central reserves of some kind are essential. Before discussing the exact location and nature of these reserves, the likely areas and character of operations must be considered.

Major Areas of Unrest

Since World War II the center of gravity of world politics has shifted from Europe to Asia and Africa. As the leading global powers now enter the period of "interdependence," the new Afro-Asian nations are at an early stage of independence or self-government. Simultaneously, other countries still partially or wholly dependent on a major power are pressing a measure of political self-sufficiency.

These countries form the danger areas of today and tomorrow. In Asia the majority of the younger nations have now passed through the stage of political adolescence. The young nations of Africa are in their political infancy. In Africa, too, the natives have little or no administrative background or ability, and to hand over the reins of government in the immediate future would be no way toward a satisfactory outcome.

This, therefore, is the favorite continent for agitation and unrest for some years ahead. East Africa, Somaliland, Sierra Leone, and Gambia, and the High Commission Territories in South Africa all come to mind.

What of Asia? The Middle East is still the major danger area—particularly the Arabian Peninsula and the Persian Gulf. Our large oil supplies from this area, especially Kuwait, and extensive treaty relations with the sheikdoms of the gulf, in addition to eastern trade routes and Bagh-

dad Pact obligations, make it a region imperative to defend. In Southeast Asia (now that Malaya has accomplished a smooth transition to independence and near-annihilation of terrorism) Singapore, with its large Chinese majority and important geographical position, and Hong Kong, perched precariously on the doorstep of Red China, seem likely fields for future agitators.

Europe (including the complete western Mediterranean seaboard) and the Americas provide fewer potential trouble areas. With Cyprus quiet at last, and assuming that a crisis in Berlin could be countered by troops already in the British Army of the Rhine, Malta, Gibraltar, and Libya appear to be the only places where internal security tasks are at all foreseeable at present. South America's only British colony, Guiana, is still a potential sore spot like its equally intransigent counterpart British Honduras farther north, while the Argentine looks enviously at the Falkland Islands. The young West Indies Federation also may experience political growing pains similar to those in central Africa today.

The major danger spots, therefore, are Africa and the Middle East with reservations on colonies and protectorates scattered over the globe. The vast majority are also in the tropics. These points must be borne in mind when discussing the location of our strategic reserves.

Character of Operations

The primary task of ground forces in the event of operations in these areas is likely to be the maintenance of internal security. This may involve the protection of life and property, prevention of interracial conflict, and a wide variety of antiterrorist operations or minor campaigns. Tasks often will be the routine ones of antiriot drills, searches and guards in the built-up areas, and road blocks, patrols, and sweeps in outlying parts—perhaps rugged, undeveloped, and inaccessible country ideally suited to the concealment of well-armed hard core terrorist gangs. Shortage of water, lack of decent roads, and intense heat are as likely as not; desert, mountain, and jungle may all be met in turn. Usually, the enemy will be difficult to track down; he may well be an adept in the art of ambush, and in the use of small arms and sabotage.

Thus the soldier will have a difficult and often unrewarding job, and his morale may be sorely tried. He may not be helped by a hostile or terrorist-intimidated populace and will need the utmost restraint and self-discipline. Internal security is a hard taskmaster.

More open and widespread conflict such as occurred in Kenya and parts of Arabia may develop also; however, the military answer is little more than a wider application of antiterrorist methods. One hopes, too, that with good intelligence and early action this situation will not be allowed to develop often.

Type of Ground Forces Required

It is apparent that the military task on these occasions will be primarily an infantry one. As a corollary to the principle of "minimum force" applied to operations in aid of the civil power, the need for heavy firepower, such as provided by armor and field artillery, is negligible; the mere presence of troops on the ground often will be enough.

However, infantry alone may not suffice. Bearing in mind probable conditions of climate and terrain, engineer and medical support will be particularly needed. Track-making and maintenance, airstrip construction, provision of water, and antisabotage tasks will call for engineers while medical backing may be very necessary in the more unhealthy areas, quite apart from normal treatment of both military and civilian casualties. Signal facilities are as important as ever in the antiterrorist role while normal logistic support from the services will be needed when

operations are extended in scope or duration. Light aircraft and helicopters for reconnaissance and liaison, and medium helicopter support in hill and jungle for the movement of patrols and snatch parties will be invaluable.

The role of artillery and armor is more difficult to define. In rugged country, light artillery support capable of a high trajectory may be needed, whereas armor is best used in the shape of fast, light scout and armored cars for road blocks, patrols, convoy and very important person escorts, and advance guards. Tanks, although a powerful deterrent in built-up areas, are unlikely to be a necessity and, in any case, current types cannot be transported by air.

Formations of all arms of a conventional type will, therefore, prove adequate for the task with certain modifications. The exact composition may vary from theater to theater, but a high proportion of infantry and adequate light support from other arms and services is the basic requirement. Specialist troops such as parachute battalions normally should not be included in these formations. If an operation demands the use of airborne troops they would be obtained from the regular airborne formation, currently 16th Independent Parachute Brigade Group, normally to be found in reserve either in the United Kingdom or the Middle East or from the Special Air Service regiment.

The present infantry brigade group is well-suited to the "fire brigade" role with the exception of the armored regiment and the field regiment. Tanks could be replaced profitably by armored cars, and the 25-pounder by a lighter weapon such as the 4.2-inch mortar or the new and easily air-transportable 105-mm howitzer. In this case an air-transportable armored car regiment or squadron would replace the armored regiment, and the field regiment would give way to a light regiment or battery. A further air increment to the formation over and above the normal reconnaissance flight, in the shape of a few medium troop-carrying helicopters of the *Wessex* or re-engined *Whirlwind* type, would be most valuable; however, limitations in payload would be imposed at high altitudes, and, of course, these machines cannot be carried in the largest current transport aircraft without being stripped. Therefore, they would be absent in the early stages of any farflung operation.

The inclusion of four battalions in the brigade group may not be unrealistic in view of the particular premium on infantry, but the retention of the usual three-decker structure simplifies the allotment of supporting arms in both training and operations. Hence battalion groups may be used quite independently; on such occasions the available airlift probably will be insufficient to carry a complete group in one wave, and infantry will move in first followed by supporting units as the situation demands.

The various locations of these troops depend first on the probable areas of unrest outlined above, and second on the size and capacity of the air transport force available to move them. We have seen in the past that this force has been grossly inadequate, although there are now encouraging signs of improvement.

Availability of Air Transport

Sudden moves to troubled spots must, of course, be carried out by air to cut delay in arrival to a minimum. In recent years the vast majority of aircraft used have been totally inadequate in number, range, and payload.

Today, the air transport situation is poor, although admittedly better than it was before the advent of *Comets* and *Beverleys*.

The prospect ahead is rosier, but does not call for complacency. The first *Britannias* have entered Transport Command. Capable of taking 113 troops or a 35,000-pound payload over stages of 2,500 miles, they will increase the Royal Air Force's

intertheater carrying potential considerably. However, they are best suited to the passenger role, and will take few light vehicles or trailers, due to the awkward shape of the cargo compartment.

Thus the need for a strategic freighter designed and built solely for military use remains. This eventually will be met by the newly ordered *Britannic*. A small number of these, which should each carry a maximum of 85,000 pounds or fly nonstop over 4,000 miles with a 25,000-pound payload, will enter service from 1964 onward, so until then the *Britannia* shoulders the main burden of strategic movement. The *Armstrong Whitworth 660*, due to supplement the *Beverley* from 1961, is well-suited to the freighting role, but its range is limited and direct intertheater hauls will be beyond its capacity. Finally, the use of the admirable American *C-130 Hercules* can be discounted, as the kind of operation in question will be normally our own affair.

What do we learn from this situation? Until strategic transports are available in considerable quantity (say in six years' time), the airlift available for the global movement of ground forces will be extremely limited. The ideal, therefore, of moving a unit with a reasonable proportion of its equipment over long distances may not be attained for years, although there is now a steadily expanding fleet of medium transports capable of doing the job over shorter ranges. Not until an adequate long-range force exists could we even consider depending only on a reserve in the United Kingdom for worldwide commitments. Therefore, in the immediate future, military reserves necessarily must be positioned in each likely theater of operations within striking distance (using *Beverley* and *AW 660* aircraft) of poten-

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The *Westland Wessex*

tial danger areas. These must be backed by a central reserve in this country to which "strategic" aircraft will be allocated as and when they enter service, thus realizing still more medium "tactical" transports for overseas theaters. This will not only facilitate good army-air training in those theaters, but cut out delay in the planning and preparation of quick fire operations.

The Use of Stockpiles

The current program of keeping large equipment stockpiles in various places abroad can be reduced gradually. This is little more than a stopgap at present; apart from the heavy drain on money and manpower for their maintenance, their use is inefficient. A unit moving from the United Kingdom for an overseas task demanding speed of action above all else can only do itself justice if it travels complete with its own equipment. Stockpiling, however, presupposes it traveling with personnel only, and drawing new vehicles and equipment at the far end. Delay in issue, lack of familiarity with equipment, and often the long distance between a stockpile and the operational area make this an unwieldy and inflexible procedure.

Actual Location of Reserves

Where, then, might these reserves be placed best? For Europe, the western and central Mediterranean, and the Caribbean, a force based in England should suffice, whereas both in the Middle and Far East separate theater reserves are needed. These require, in addition to the air transport facilities already discussed, adequate and varied training areas, good accommodation for personnel, including dependents, and a reasonably stable political situation in the country in which they are based. Operationally, a good port is desirable for the dispatch of heavy followup echelons by sea.

Something approaching this state of affairs already exists. A reserve is in being in the United Kingdom together with a small medium-range transport force, although it is very doubtful whether its over-all standard of training is high enough due to constant changes in both units and individuals. In the Middle East a brigade group is positioned in Kenya, and two battalions in Aden, while Cyprus eventually will house one brigade as well. In the Far East, Malaya houses a Gurkha and a Commonwealth Brigade, and Hong Kong has an additional brigade.

One or more such formations are required in each theater. In overseas theaters, numbers may be reduced as the strategic freighters enter service, but there will still be good grounds for keeping a high proportion of reserves abroad. Acclimatization, proximity to trouble areas, "showing the flag," and the many normal advantages of service abroad over soldiering at home are important factors, as is the indirect stimulus given to recruiting by good prospects of overseas service.

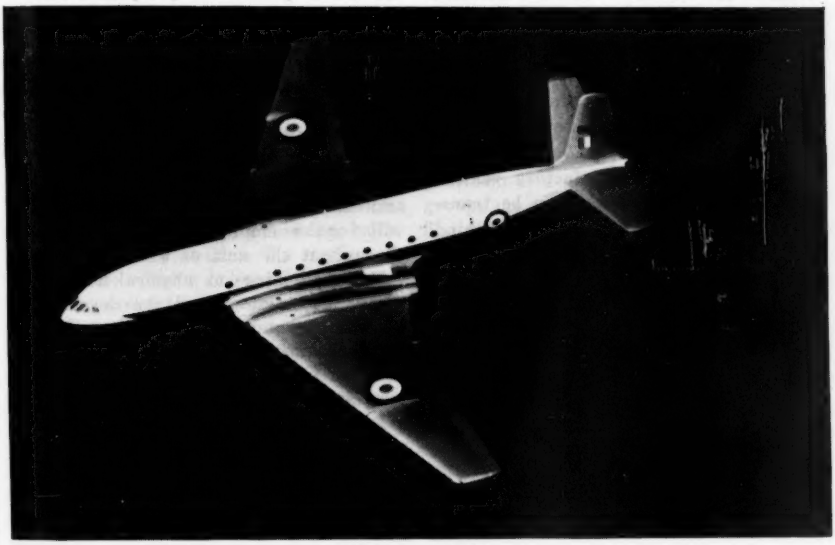
The *Whirlwind*

Perhaps two modified, lightly equipped infantry brigade groups in the United Kingdom, backed by part or all of our one regular airborne formation, is a rea-

sonable figure to aim at. The Middle East will need at least two; in the Far East one may suffice for the present.

The location of reserves in the Middle East has been a very real problem for some time, although the knotty postwar question of whether Cyprus or Kenya should provide the primary base is now resolved politically in favor of Kenya. Apart from the small number of troops allowed in the new Republic of Cyprus, and the inadequacy of training areas, the island is separated from Arabia and the Persian Gulf by the Arab bloc of Syria, Egypt, and Iraq which provides an effective air barrier against direct movement to and fro. Kenya, on the other hand, does represent a fairly satisfactory center; despite some political agitation the base is well established. Training areas are extensive, there are good airfields near Nairobi, Mombasa provides an excellent port, and direct communications with the Persian Gulf are easy by both sea and air. Whether keeping reserves in Kenya alone is sufficient is not so certain; it is well over 2,000 miles, for instance, from Nairobi to the oilfields at Kuwait, so some kind of reserve is needed in Aden as well. Although far inferior to Kenya as a base, part of the Middle East reserve may have to be positioned here for some time ahead. Battalion groups from Kenya might do short tours of a year or so in Aden in rotation.

The need in the Far East is less urgent, and soon that area will possess a mobile seagoing reserve in the form of a marine commando carrier based on Singapore. Our land-based reserve is best situated in Malaya itself, an alternative being North Borneo, which in any case will provide an admirable training area. A major need in this theater today is an adequate transport force to replace the aging aircraft still in service.



The *Comet II*

Equipment Requirements

We have seen that these reserves must be able to travel in most available trans-

port aircraft and then operate on limited scales of transport and equipment for considerable periods. Furthermore, the dominance of the infantry role calls for the best available weapons at company level and below. The scale and type of equipment will be influenced largely by these considerations.

Air transportability is probably the most important single factor. The poor performance of the *Beverley* with high payloads, the *Hastings*' inability to carry anything larger than light vehicles, and the restricted cargo compartment of the *AW 660* will restrict units to the ¼-ton truck and ½-ton trailer in the initial stages of an operation. Where really necessary, the long wheelbase *Land Rover* is likely to be a more satisfactory vehicle. The 3-ton truck will not often be transported by air, but will either stay behind or follow up by sea, depending on the scope of the task at hand.

Armored units also will find it difficult to take the *Saracen* and *Saladin* when aircraft space is at a premium. However, it is unlikely that anything larger than scout cars will be needed during early phases of operations and they present no particular air transportability problems.

There is also a case for the issue of an ultralight vehicle—something far smaller than a *Land Rover* but with comparable load-carrying and cross-country ability. Examples are the *Harrier*, a four-man personnel carrier powered by a motorcycle engine, which folds into a box measuring 8 x 2 x 2 feet; and the American *Mechanical Mule*, similar in principle but more robust and easier to maintain. Although this latter machine does not fold up, large quantities could be carried in a *Beverley* in comparison with current types of light vehicles.

There are many other equipment problems, but the majority are armywide and not peculiar to strategic reserves.

Training

The training of "fire brigade" forces is simpler than that of standard formations with heavy armored and artillery support. Primarily, everyone, not only infantry, must be well-versed in the rudiments of internal security and practiced in operating in difficult terrain with the minimum of transport and logistic resources. Small arms training merits very special attention; the standard of shooting at sudden, moving targets must be improved continually by imaginative field firing exercises. Air transportability demands considerable training and practice in the physical aspect of loading and lashing equipment into aircraft—an army responsibility—and in the actual sequence and procedure of an air move. Army-air and army-police cooperation; signal training; and desert, jungle, and mountain warfare will require emphasis at different times throughout the unit as a whole. Individually, such things as physical fitness, hygiene, mapreading, and the development of initiative and responsibility at the junior noncommissioned officer level for purposes of patrolling and similar tasks will need special effort.

In this respect there is nothing like an actual move to put one's training into practice. Short-notice air moves followed by "operations" in unfamiliar terrain should be a regular feature of training and will act as a tonic to morale; both local and intercontinental moves should be practiced.

Operational Readiness

The main reason for having such reserves is to ensure speed of action when required. How can this be achieved best when set against demands for training, leave, and other diversions?

Taking a brigade group as our example, it is apparent that at least a portion must be ready to move with little or no warning; in fact, it is quite likely that only the "combat" elements of units will move

in the initial stages by air. Thus in each formation a certain percentage must be kept ready to move at extremely short notice. This could well be a battalion group, itself divided into "first lift" and "followup" echelons. Exact proportions will differ according to particular tasks, and it may be necessary to keep staff tables for several different scales of men and equipment.

In a brigade group, therefore, when there is no particular crisis at hand, one battalion group may be placed at 24 hours' notice, one at five days, and the third at 14 days' notice. The first group must remain at base and only local training will be possible, the second may strike farther afield, while the third will be able to indulge in larger exercises over longer distances. Leave and courses should fit in with this pattern—the group at near-immediate notice cannot afford to have many people away at once. The degree of notice can be rotated between the battalion groups every four months or so, thus completing the full training cycle over the year, providing all is quiet within the theater.

At present the training of reserves such as this is interrupted continually by frequent changes in units and faces. This is unsettling, although to some extent inevitable. However, the termination of conscription and simultaneous increase in long-term regulars will soon bring a marked improvement; and surely these formations provide a strong case for the provision of all regular units as soon as possible. A suitable tour period in a theater reserve would be three years; infantry and armored units rotating as a whole. The remaining units probably would rotate personnel on an individual basis. With an over-all system on these lines, a high general state of operational efficiency should not be unduly difficult to maintain.

Conclusion

We are already some way toward establishing a mobile, air-transportable strategic reserve that can act in a wide variety of conventional present-day roles. In the next few years the importance of these forces, both as a deterrent and as a "fire brigade," can hardly fail to grow. By the provision of a number of infantry brigade groups on a theater basis, suitably modified to meet the particular requirements of the cold war, and by gearing their strength and disposition to the growing availability of air transport we can contribute a great deal to world peace and stability.

Formations on the lines of those discussed above deserve a priority as high as nuclear ground forces in the matter of training and the allocation of new and better equipment. Reserves of this nature are bound to be included in the order of battle of the regular army for many years. The numbers suggested here may prove inadequate—only time will show.

What America is today and will be tomorrow depends on our sense of individual overriding responsibility for the maintenance of the strength of America in every area of our national life. If there is one characteristic that has marked all great Americans, it is the fact that they have recognized an obligation to people yet unborn.

Secretary of the Army Wilber M. Brucker

WHAT DETERMINES THE STRENGTH OF THE ARMY?

Digested by the MILITARY REVIEW from an article by Colonel I. Grudinin, Soviet Army, in "Krasnaia Zvezda" (Red Star) 16 February 1960. Translation by Mr. Walter Darnell Jacobs.

The article which follows purports to be a reply to a letter from one "Comrade Butyrov" requesting an explanation of the recent reduction in the strength of the Soviet Army. The answer which is furnished may be the approved party line for internal consumption—to sell the chosen course of action to the armed forces—or it may be designed as external propaganda. It follows a concept that firepower substitutes for manpower, and that nuclear weapons and rockets have permitted a reduction in the strength of the army. Emphasized, however, is the requirement for the retention of all types of military forces "in the appropriate proportion."—Editor.

YOU understand, of course, that a new approach to various questions of social life, including questions concerning military affairs, is conditioned by the changes which take place in the process of social development and which touch upon one or another side of human activity.

As has been demonstrated scientifically by the classics of Marxism-Leninism, developments in military affairs are conditioned by developments in the economy. In a series of his works, Friedrich Engels stressed that the entire organization and combat method of an army depend on material, that is, on economic conditions, on human material, and on arms. Vladimir I. Lenin, in characterizing wars of the epoch of imperialism, said that "the connection between the military organization of a country and its entire economic and cultural system has never been closer than at the present time."

Even in contemporary conditions, these theses of Marxism-Leninism have not lost their significance. The defense capability of a country and the combat power of the army, even in our time, depend entirely on economic and moral-political factors which operate in close connection and reciprocity. The size of the army as well as changes in tactics, operational art and military strategy, and organization of the army are conditioned by these factors.

You are, of course, well acquainted with the report of Comrade Nikita S. Khrushchev to the fourth session of the Supreme Soviet of the USSR. This report is a model of the creative development by our party of the Leninist ideas on the peaceful coexistence of differing social systems during the present arrangement of class forces in the international arena. Important theses of Marxism-Leninism on war and the army and on the defense of the cause of socialism and communism were developed in the report, and a profound substantiation of the role of political and moral factors in the strengthening of the defense capability of our country also was given.

The Era of Development

Briefly, the following may be said about this. The Soviet Union is experiencing a period of an unprecedentedly rapid development of the national economy, and of the further consolidation of the indestructible moral-political solidarity of Socialist society. As a result of the triumph of Leninist ideas, of the building of socialism, and of the successful construction of communism, our country is now going forward in all directions—in the area of the economy, in the area of the raising of the

standard of living of the toilers, and in the area of the development of science, technology, and culture.

Comrade Khrushchev declared in his report to the session:

On the basis of these successes, our scientists, engineers, and workers engaged in defense industry have created new types of armaments which are the most modern and are responsive to the last word of science and technology.

Developments of the economy, achievements of scientific-technical thought, which have brought about a grandiose leap in the technical equipment of the troops have forced a somewhat different approach to the matter of the size of the army as one of the questions concerning the defense capability of the country. Now the defense capability of the country, if separated from general political and economic factors, is not determined by how many soldiers are under arms but, to a decisive degree, depends on the firepower and delivery means which are at the disposal of a given country.

Since the appearance of firearms in the armament of troops, firepower has served as an index of the defense capability of an army. With the development of industry, science, and technology, and of productive forces as a whole, the firepower of armies has grown. It has grown especially in the machine period of wars. Tanks, airplanes, various types of artillery, and automatic weapons have appeared in the armament of armies. Such a quantity of fire means and combat techniques have been used as were not known, indeed, could not have been known in the history of past wars.

Here you may ask: Why, with such a colossal growth in the firepower of elements and units, did the general size of armies of fighting states not decrease, but rather increase?

Yes, indeed, in spite of the growth of firepower, the general numerical composition of armies of states which took part in the First and Second World Wars did not decrease but increased. This is explained first of all by the character of armaments and the scope of military actions. They were conducted on the ground, on the sea and in the air, across huge expanses, and on a great number of fronts extending to hundreds and thousands of kilometers. With the growth of firepower, the numerical composition of elements, units, and formations declined. Thus for example, the firepower of our rifle company in 1940 was improved 10 times as a result of automatic weapons, but the number of personnel in the company declined two times. However, the quantity of divisions and regiments increased and, consequently, the strength of the army as a whole increased.

The Impact of Modern Weapons

In the period after the Second World War, tremendous changes took place in military affairs. What were those changes?

Thanks to the development of science and technology, Soviet scientists, engineers, and workers have made it possible to equip the army with types of armaments that were previously unknown to man—atomic, hydrogen, rocket, and other weapons. The effectiveness of these types of weapons is thousands, even millions, of times higher than that of weapons used in past wars.

Possessing a great range and altitude of flight, ballistic rockets also attain a tremendous speed and are capable of delivering, with reliability, in a short time and under any meteorological conditions, nuclear loads of the most varied capacities to any point. They provide a high possibility of delivering simultaneous powerful blows on a great quantity of objectives, of implementing quick maneuver, and of exerting a decisive influence on the development of the situation by fire and massed nuclear blows.

In order to explain better what the

rocket weapon represents, let us make a comparison. One rocket of strategic designation is capable of delivering a nuclear load to a target which is equal in its power to the total force of explosions of ordinary type which were contained in the two million tons of bombs dropped on objectives in Germany by Anglo-American aviation in the period 1940-45.

The rocket weapons which our army possesses are being perfected and will be

Soviet surface-to-surface missile

perfected further. Of course, these weapons are also in the armies of several Capitalist countries, including the United States Army. But, as was noted at the fourth session of the Supreme Soviet of the USSR, we shall do everything to utilize the time won by us in the development of rocket weapons and to occupy a leading position in this area until international agreements on disarmament are achieved.

What conclusion follows from all this? According to their technical equipment, the armed forces of the USSR stand at the level of the very latest achievements of science and technology. They possess combat means and firepower such as no other army has ever had. This firepower is sufficient to hinder a probable opponent, to deter him from attack, and, in case of an attack, to give it a shattering, destructive rebuff.

Strength of the Army

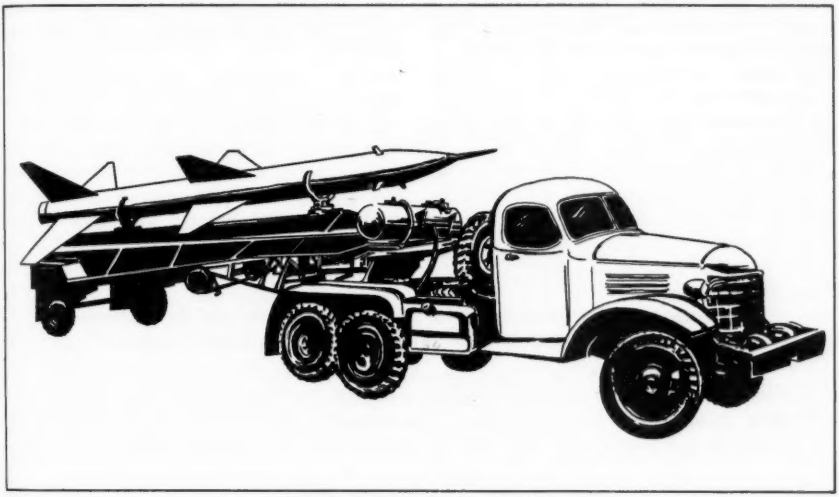
It is here, Comrade Butyrov, that we have come to the question of the strength of the army. In accordance with the law adopted by the Supreme Soviet of the USSR, the strength of the Soviet armed forces will be reduced by 1.2 million men, that is, by one-third, and will consist of 2.4 million men. Does this reduction affect the firepower of our army? No, it does not affect it at all. You see, beginning with 1955, our armed forces already have been reduced by more than one-third. But, thanks to the development and introduction of the latest types of modern military techniques, their firepower has grown, in the same period, by many times.

The significant growth of firepower, which is the basis of the combat capacity of the army, is one of the decisive conditions which permit our country to effect a new, significant reduction in the strength of the armed forces.

It is entirely understandable, Comrade Butyrov, that, in the present case, it is a matter of the strength of the army in peacetime, of the strength which, with the appropriate firepower at the disposal of the army, is sufficient at any time to give a shattering rebuff to any aggressor. If the imperialists risk unleashing a new war, that war also will be waged across huge expanses and on a great many fronts. This, undoubtedly, will necessitate a definite increase in the strength of armies. *In addition to this, our military science believes that rocket troops alone, as the main type of our armed forces, cannot decide all the tasks of war. The successful waging of military actions, even in rocket-nuclear war, is possible only on the basis of the coordinated utilization of all means of armed struggle and the union of the strengths of all types of armed forces. And this means all types of armed forces must be retained, and are being retained, in the appropriate proportion.*

Thus the strength of the army must not

be considered by one measure in peacetime and another in wartime. At the session of the Supreme Soviet of the USSR the question was raised of the possibility of the transition to the territorial system in the organization of the armed forces, if an agreement is not attained on complete and general disarmament. Apparently, this system can guarantee for the army the necessary cadres and contingents of the population who are instructed in military affairs and are equipped with modern weapons.



Soviet surface-to-air missile

Influence of International Tensions

Along with military technology, the international situation exerts a great influence on the strength of the armed forces, both in the past and in contemporary conditions. When the international situation is strained and there is a direct threat to the safety of a peace-loving state, then that state is forced to increase the strength of its armed forces. On the contrary, a lessening of international tensions makes possible a reduction of armed forces.

The international situation is determined largely by the foreign policy that is conducted by a state. The strength of armies also depends on this policy. The Soviet Union always has conducted a peace-loving foreign policy—a policy of friendship and businesslike cooperation between peoples. All Socialist countries conduct such a policy. You, Comrade Butyrov, obviously are familiar with the Declaration of States—the participants in the Warsaw Pact, which was adopted on 4 February of this year by the Conference of the Political Consultative Committee. The participants of the conference stated in their declaration that they considered the decision of the Soviet Union on a new, large reduction of her armed forces, taken in agreement with other countries of the Socialist camp, as a general contribution to the organization of the Warsaw Pact to disarmament, as an initiative facilitating the achievement of an agreement between the states of the East and the West on general and complete disarmament.

Many persons in the imperialistic countries have nothing against declaring their adherence to peace. But words are one

thing and practical actions another. You see, it is a fact that states—members of the aggressive bloc of the North Atlantic Treaty Organization—not only continue to maintain inflated armies but also to increase their strengths still more. For example, the strength of the army of the United States, the territory and extent of borders of which are far less than those of the USSR, consists, according to American press reports, of 2.8 million men in military service and 1.4 million in the so-called civilian services. The session of the North Atlantic Treaty Organization which took place in December 1959 concerned itself with the examination of plans for the further building up of the armed forces of this aggressive bloc.

From all that has been said, we should make this conclusion, both theoretically and practically: in spite of the significant reduction in the strength of our army, its firepower is at the level required and is sufficient to give a shattering rebuff to an aggressor. But taken by itself, the firepower of the latest weapons cannot guarantee a reliable and high combat capability among troops. And in these conditions, the thesis of Marxism-Leninism, which states that the main strength of the army, the ruler of its destinies, the creator of its combat capability, and combat readiness is man, remains stable. And not simply man, but the warrior-man, masterly disposing modern combat techniques and weapons, possessing high political and morale-combat qualities, who is steadfast and manly, disciplined, and fearless. The education of such warriors was and remains the chief task of commanders, political organs, party, and *Comsomol* organizations of our army and navy.

We must never be so beguiled by mechanical marvels and innovations as to forget that they are but tools of the ground combat soldier's trade.

It is quite easy in these times to be deluded about the value of this man. The phrases 'missile warfare,' 'nuclear annihilation,' 'space wars' have inoculated some people with attitudes and conceptions of future warfare. These attitudes and concepts all but rule out the need of the combat soldier.

They would relegate him to the old corral along with the Cavalry horse or place him in the same category as the rapidly disappearing steam locomotive.

They are kidding themselves!

A realization has just begun to dawn. It is a gradual realization that the global, thermonuclear capabilities of nations to wage war could end in a stalemate.

If you will study the entire pattern of Communist aggression since the cold war began, it has been one of stirring up local crises. And it wasn't a push-button that stopped them cold in their tracks. It was the ground combat soldier. He still is, as he always has been, the mailed fist of diplomacy—the warning hand against aggression.

It is no coincidence that in the history of the world, no battle for democracy was ever won without him. And history has a curious way of repeating itself.

General Bruce C. Clarke

BOOKS OF INTEREST TO THE MILITARY READER

NUCLEAR POLICY FOR WAR AND PEACE. By Thomas E. Murray. 241 Pages. The World Publishing Co., Cleveland, Ohio. $4.00.

BY LT COL FRANCIS J. KELLY, *Armor*

Mr. Murray was a commissioner on the Atomic Energy Commission during the period 1950-57. This background, together with his education, his accomplishments in the mechanical and electrical engineering fields, and his record of service in high governmental circles makes him uniquely qualified to discuss the policy aspects of the nuclear age. His elementary theme is restoration of basic morality in evolving national policy.

Mr. Murray is forthright in his dissatisfaction with the current course of nuclear policy as it affects weapon development and disarmament. He proposes a plan of "rational nuclear armament" by which:

1. An upper limit would be set on the *size of the yield* of thermonuclear bombs to be placed in the stockpile.

2. A limit would be set on the *total number* of thermonuclear bombs to be stockpiled.

3. A heavy stockpile program for a wide range of small nuclear weapons would be produced.

4. The program of testing small nuclear weapons would be greatly accelerated while testing of multimegaton weapons halted.

He also proposes a program of "rational nuclear disarmament" which is not as paradoxical as it might appear. Mr. Murray feels that stockpiles, within certain yield limits, can be eliminated and that nuclear testing within the atmosphere can be halted by declaring a moratorium on those weapons large enough to be detected. He advocates, however, the continuance of tests in outer space and underground. He presents the case that atmospheric tests should be halted because of fallout contamination fears, but he opposes halting *all* tests because of inadequate detection machinery to disclose violations of an all-out ban.

The author is scrupulous in his examination of the problem, lucid and precise in his analysis of the courses of action needed to correct the deficiencies, and possesses an acute appreciation of the Soviet mind and propaganda gambits. He cites his belief in the innate toughness of fiber of the American mind and spirit, while he calmly dissects the origin and development of American nuclear policy which he feels has been a failure.

He presents his thesis for a moral, courageous revision of policy built around the firm conviction that selective use of small-yield nuclear weapons should be the cornerstone of a new, dynamic, military, and political philosophy in dealing with the problems of our time.

While the book might have benefited from a crisp, critical, oppositive analysis of his argumentation prior to printing, it, nevertheless, stands in terms of clarity, simplicity, and rhetoric as the best expression of the necessity for an equation between morality and security that has appeared to date.

GRANT MOVES SOUTH. By Bruce Catton. 564 Pages. Little, Brown & Co., Boston, Mass. $6.50.

BY MAJ ROBERT C. BURGESS, *Arty*

The reading public has been treated to an unprecedented array of new books about the Civil War as the centennial of that period in our history approaches. No matter how distinguished these works have been, a small group inevitably stands out as the best of the lot. Mr. Catton's latest offering is clearly one of these select few.

As pure history, this volume would merit a place high on any list of Civil War readings. However, this is not only a skillfully done historical study, it also is the story of the rise of a man from obscurity to the brink of greatness.

In the opening pages ex-Captain Grant is seen in the summer of 1861 as a newly commissioned colonel assuming command of the 21st Illinois Infantry. The book closes shortly after Grant has led his Union Army to victory at Vicksburg in July 1863.

The story of Grant's development in the period between these two events is fascinating and is brilliantly told by Mr. Catton. Using official records, Grant's personal letters and memoirs, and extensive bibliographical references, the author takes the reader along with Grant from his first days with the 21st through the campaigns at Henry and Donelson, Shiloh and Vicksburg. Between the vivid accounts of these and other actions, Grant's trials with his more difficult contemporaries and his solutions to the many thorny problems forced on commanders in the border states are examined in detail.

Grant Moves South should prove of great interest to any military reader. It is an outstanding study of the development of a senior field commander and of his methods for getting the most from the spirited Volunteers comprising his Army of the Tennessee. The book shows clearly what was meant when Lincoln said of Grant during this period, "I can't spare this man; he fights."

CARTWHEEL: The Reduction of Rabaul. The War in the Pacific. United States Army in World War II. By John Miller, Jr. 418 Pages. Superintendent of Documents, US Government Printing Office, Washington, D. C. $5.25.

Two strong men, the Army's General Douglas MacArthur and the Navy's Admiral William Halsey, dominate the pages of this volume in the series UNITED STATES ARMY IN WORLD WAR II. Between March 1943 and March 1944, these dynamic figures—MacArthur commanding the forces of the Southwest Pacific and Admiral Halsey the forces of the South Pacific—led thousands of Allied soldiers, sailors, and airmen through a dozen brilliant operations in the vast area of New Guinea, the Solomon Islands, and the Bismarck Archipelago. These crucial operations, known collectively by the code name Cartwheel, cleared the way for MacArthur's eventual return to the Philippines.

With one spectacular exception, the story of the Cartwheel and Bismarck campaigns flatly contradicts the widely held view that MacArthur and his opposite numbers in the Navy could not get along.

A temporary disruption of this "cordial relationship" did indeed occur, and the author does not hesitate to record the heated words that passed before peace was restored between Army and Navy. But in the context of the yearlong series of Cartwheel operations, this incident serves to point up a remarkable display of interservice accord.

At Guadalcanal and Papua, the fortunes of war in the Pacific slowly began to turn in favor of the Allies. In the Cartwheel operations the tempo of triumph quickened as MacArthur and Halsey skillfully exploited the growing margin of Allied superiority.

DEFENSE IN THE NUCLEAR AGE. By Stephen King-Hall. 234 Pages. Fellowship Publications, Nyack, New York. $2.75.

BY MAJ SAM H. SHARP, *Inf*

Stephen King-Hall has developed a method of defense against the totality and destruction of war that is so radical as to stretch credulity.

He argues that fundamentally war starts from an idea and that the object of war is to *change the mind* of the enemy. This object he proposes to accomplish by nonviolent resistance. He ends less practically with an idealistic program.

The author admits that the world is not yet ready for this method. To implement this method would require a first bold step of unilateral nuclear disarmament leading to eventual complete disarmament complemented by intensive training in the home and throughout the school systems.

This book was written and first published in Great Britain in 1957 principally for British consumption and has been republished in the United States by a pacifist press with a concluding chapter for Americans.

FUNDAMENTALS OF GUIDED MISSILES. By Air Training Command, United States Air Force and Technical Staff, Aero Publishers, Inc. 575 Pages. Aero Publishers, Inc., Los Angeles, Calif. $12.50.

BY MAJ MAURÍCIO FELIX DA SILVA, *Brazilian Army*

This voluminous work completely covers, in its level, the field of guided missiles.

Basically, it comprises two parts: science and technique. In the first, the reader starts with Newton's law of movement and passes gradually through the principles of aerodynamics, physics, and ballistics applicable to the subject.

The technical part is very rationally approached. The study of the two vital systems of the missile—control and guidance—is devoloped in such a way that it first examines each one of the components which constitute these systems and then considers how they work together in their respective assemblies.

Chapters are provided on propulsion and instrumentation. The method of presentation, together with the glossary given in the first pages, turns the book into an excellent technical manual for beginners, and a handy reference source for those engaged in the missile industry.

Despite its specialization, the generalist also will find this book useful. With an unusual skill, the authors put together in a single volume the administrative, technological, and military aspects of the problem so as to provide a panoramic view of the relationship between technology, the organization which permits the production of missiles, and the concepts that regulate their employment as weapons.

COMMANDANT OF AUSCHWITZ. The Autobiography of Rudolf Hoess. Introduction by Lord Russell of Liverpool. Translated from the German by Constantine FitzGibbon. 285 Pages. The World Publishing Co., Cleveland, Ohio. $4.50.

The man who commanded the most notorious of the Nazi concentration camps in Poland for the exploitation and annihilation of the Jews has dispassionately written this autobiography in which he concedes that he "personally arranged . . . the gassing of two million persons between July 1941 and the end of 1943." This is a translation of Rudolph Hoess' handwritten account of his life recorded while he awaited trial for the wartime crimes for which he was condemned to death and executed in April 1947.

This depressing book is of interest to the military reader primarily because of its revelation of the psychological makeup of a man who was capable of the actions which he readily acknowledges.

LOGISTICAL SUPPORT OF THE ARMIES. The European Theater of Operations. Volume II. United States Army in World War II. By Dr. Roland G. Ruppenthal. 540 Pages. Superintendent of Documents, US Government Printing Office, Washington, D. C. $4.50.

The final Army historical volume on supply operations in Europe, this work focuses on the influence which logistical support, or lack of it, had on the planning and conduct of tactical operations. The volume concentrates on problem areas in logistic support, such as port discharge and transportation difficulties, and supply and manpower shortages. Such topics as hospitalization and evacuation, communications, and construction purposely have been left to more detailed technical service histories.

BRASSEY'S ANNUAL 1959. The Armed Forces Year-Book. Edited by Rear Admiral H. G. Thursfield. Assistant Editors Brigadier C. N. Barclay and Air Vice Marshal W. M. Yool. 396 Pages. The Macmillan Co., New York. $9.50.

The 1959 edition, seventieth in the series of the British armed forces year book, comprises 34 separate articles on defense problems of current and historical interest. The problems facing the North Atlantic Treaty Organization are criticized and discussed as are the past, present, and future organizations for the defense of the United Kingdom. Soviet military doctrine, the Communist air forces and their probable employment in an eventual future war, and the great deterrent concept are covered by some of the outstanding military leaders and writers of the British Commonwealth.

Brassey's has long been recognized as a standard reference book on matters of defense policy, strategy, and force structure. Because of the intimate relationship between the United Kingdom and the defense of the NATO area, recent issues have been of particular interest to professional military men and defense planners in the United States.

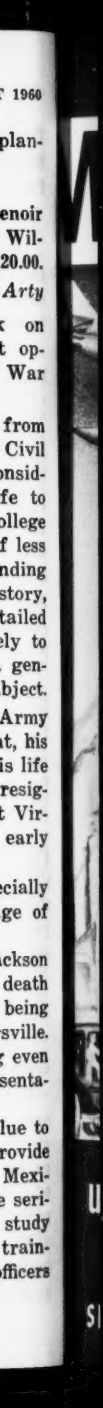
STONEWALL JACKSON. By Lenoir Chambers. Two Volumes. 1076 Pages. William Morrow & Co., Inc., New York. $20.00.
BY LT COL HORACE M. BROWN, JR., *Arty*

This excellent two-volume work on Stonewall Jackson comes at a most opportune time—just prior to the Civil War centennial.

Volume I covers Jackson's life from birth through the early days of the Civil War. Mr. Chambers dwells to a considerable extent on Jackson's early life to show how a virtually unknown College professor could emerge in a period of less than two years as one of the outstanding military geniuses of our country's history, if not of the world. The author's detailed study of Jackson's early life is likely to wear on the reader unless he has a genuine interest in the period and the subject.

Jackson's early service in the Army after his graduation from West Point, his participation in the Mexican War, his life in the US Army after the war, his resignation from the Army, his tenure at Virginia Military Institute, and his early Civil War experiences are covered.

The pace of the first volume is especially rapid and interesting in its coverage of the Mexican and Civil Wars.

Volume II deals entirely with Jackson in the Civil War, closing with his death from pneumonia in May 1863 after being seriously wounded at Chancellorsville. This volume is extremely interesting even though detailed and factual in presentation.

These volumes have a twofold value to the professional soldier, for they provide an accurate account of much of the Mexican and Civil Wars. They afford the serious minded officer the opportunity to study the mistakes and errors in planning, training, staff, and command that these officers made.